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Frequency of Placenta Previa and Maternal Morbidity Associated with Previous Cesarean Delivery*

Anisodowleh Nankali[1#], Farahnaz Keshavarzi[1], Atefeh Shajari[1], Sara Daeichin[2]

[1]Kermanshah University of Medical Sciences, Kermanshah, Iran
[2]MSc Student in Obstetrics, Students Research Committee, School of Nursing and Midwifery, Kermanshah University of Medical Sciences, Kermanshah, Iran
Email: [#]anis_nankali@yahoo.com

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Abstract

Background: Placenta previa (P.P) is a rare pregnancy complication where a placenta particularly or completely covers the internal cervical os thereby preventing normal vaginal delivery. This study was conducted to evaluate the relationship between repeated cesarean deliveries and subsequent development of placenta previa. Methods & Materials: This cross-sectional study was held in Imam Reza Hospital Kermanshah-Iran during 2008-2011. This study included all pregnant women with repeated cesarean sections while nullipara and patients with placenta previa without previous surgery were excluded. Diagnosis was made on ultrasound and at surgery. Results: among 2696 Women, 98 cases had P.P (3.63%). The mean age was 30 years, 76.5% (75 cases) had gravidity 2 and 3 and 87.8% (86 cases) had parity 1 - 3. Anterior location of placenta was 44.9% while posterior was 55.1%. 48% were complete P.P, 32.7% low lying P.P, 13.3% marginal P.P, and 6% Partial P.P. 26.5% of patients had history of abortion. 55.1% of patients had male fetus. There was an increase in frequency of placenta previa with just one previous C-section (74.5%). Frequency of accreta P.P 32% (n = 7), increta (14.3%, n = 3) and percreta 28% (n = 6). Among those who underwent emergency hysterectomy (21 cases) 23.8% cases had no abnormal placentation. 30.6% of newborns had birth weight < 2500 g. Conclusion: we concluded that patients with history of one pervious cesarean delivery had more Placenta previa and need to hysterectomy were more than those with history of 2 and 3 previous cesarean delivery. The most common type of abnormal placentation was accreta, percreta and increta respectively.

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#Corresponding author.

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Keywords

Placenta Previa, Cesarean, Maternal Morbidity

1. Introduction

Placenta previa (P.P) is a rare pregnancy complication where a placenta particularly or completely covers the internal cervical os thereby preventing normal vaginal delivery [1]. It is found to complicate 0.3% - 0.8% of all pregnancies worldwide [2]-[7]. Risk factors for (P.P) include previous uterine scar, smoking, maternal age over 35 years, grand multipaity, recurrent abortions, low socioeconomic status, infertility treatment and male gender. P.P is also associated with abnormal placentation and preterm delivery [8]-[11]. The higher incidence of cesarean delivery today is strongly associated with the greater frequency of P.P from 1/10,000 pregnancies in 1950 to 1/200 frequencies nowadays [12]. The risk of morbidity adherent placenta, a life-threatening condition increases with each previous cesarean birth [13]. Nulliparous women with a P.P have a 1% - 3% rise in contrast with 2 or more previous deliveries who have a P.P the risk increases to 30% - 51% [14]. The authors of one study found that in the presence of a P.P the risk of placenta accreta was 3%, 40%, 61% and 67% for the first, second, third, fourth, and fifth or greater repeat cesarean deliveries, respectively [15].

This markedly increases risk for massive hemorrhage at the time of attempted placental removal and it is the most common indication for emergency hysterectomy. The maternal mortality risk may reach 7% and surgically morbidities include massive transfusion, infection, urologic injuries and fistula for mation [16].

History and number of previous cesarean delivery is important to have placenta previa and abnormal placentation in subsequent pregnancies. Imam Reza teaching hospital is a referral center in the west of Iran and most of repeated cesarean deliveries are done in our institution and today we face with many patients with placenta previa who need hysterectomy, So we decided to conduct this study to evaluate the frequency of the placenta previa and morbidity adherent P.P based on number of previous cesarean deliveries.

2. Methods & Materials

This cross sectional, observational study was conducted in the department of obstetrics & gynecology at Imam Reza teaching hospital Kermanshah medical college from end of 2008 to end of 2011. It was approved by Clinical Research Development Center, Imam Reza Hospital. Kermanshah University of Medical Sciences (KUMS), name and private information of patient was kept secret. This study included all pregnant women with repeated cesarean sections while nullipara and patients with placenta previa without previous surgery were excluded. Based on the review of medical database data was collected regarding maternal age, parity, gravidity, gestational age, number of previous cesarean deliveries, grade of P.P, location of placenta anterior versus posterior, abortion, abnormal placentation, fetal sex, fetal anomalies recorded on the specially designed performa. Birth weight, Apgar score, need to hysterectomy were also considered. Diagnosis was made on ultrasound and at surgery. All grades of P.P were included the study. A total number of 2696 patients with history of previous C-section during 4 years were enrolled for the study purpose .finally data was analyzed by SPSS software version 18.

3. Results

During 2008-2011, 2696 patients with history of previous cesarean delivery were recorded at Imam Reza teaching hospital, among them 98 patients had P.P with frequency of 3.63% (**Table 1**).

Anterior location of placenta was determined in 44 cases (44.9%) and posterior location in 54 cases (55.1%). regarding type of P.P 48% were complete P.P, 32.7% low lying P.P, 13.3% marginal P.P, and 6% Partial P.P. in those with history of previous cesarean section and P.P, the mean age was 30 years old, 76.5% (75 cases) had gravidity 2 and 3 and 87.8% (86 cases) had parity 1 - 3. 81.8% of patients (86 cases) had parity 1 to 3 and 12.2% (12 cases had parity more than 3) mean of gestational age was 34 weeks and 6 days (**Table 2**).

Regarding abortion rate 36 out of 98 patients (26.5%) had history of abortion. 55.1% of patients had male fetus and remaining 44.9% had female fetus (**Figure 1**).

Regarding birth weight 30.6 of newborns were low birth weight (less than 2500 g). We found no congenital

malformations in newborns.

Among those who underwent emergency hysterectomy (21 cases) 23.8% cases had no abnormal placentation (**Table 3**).

In this study 22.4% of patients needed to transfusion (**Table 4**).

Table 1. Outlines the frequency of P.P by previous cesarean delivery.

Number of previous cesarean delivery	Frequency of P.P	
	Number	Percent
1	73	74.5%
2	20	20.4%
3	5	5.1%
Total	98	100%

Table 2. Out lines frequency of abnormal placentation in the patients.

Abnormal placentation	Number	Frequency percent
Accreta	10	10.2%
Increta	9	9.2%
Percreta	12	12.2%

Table 3. Outlines frequency of hysterectomy based on number of previous cesarean deliveries.

Number of cesareans	Number of hysterectomy	Percent
1	10	47.6
2	8	38.2
3	3	14.2

Table 4. Shows frequency of type of abnormal placentation among hysterectomies patients.

Type of abnormal placentation	Frequency of hysterectomy	
Accreta	Number percent	7 (32%)
Increta	Number percent	3 (14.3%)
Percreta	Number percent	6 (28%)

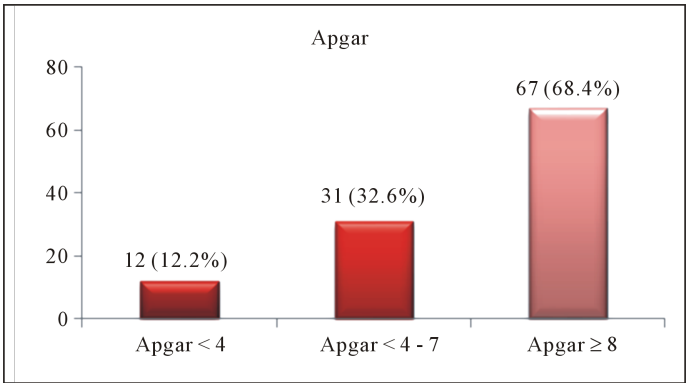

Figure 1. Outlines frequency of Apgar score in newborns.

4. Discussion

The frequency of cesarean section is increasing, worldwide with a parallel rise in maternal mortality and mortality. The higher incidence of cesarean delivery today is strongly associated with greater frequency of P.P. The incidence of morbidity adherent placenta has increased dramatically over the last 3 decades with the increased in cesarean delivery rate [17]. In the present study 98 out of 2696 cases with history of cesarean delivery had P.P. Many studies conducted around the world confirm a 2 to 5 fold increase risk of placenta previa with previous history of C-section [18]-[20]. Showing up to 37.5% increased risk with previous C-section. Present study shows the association of P.P with previous C-section (3.63%), this can be explained by the fact that scars of C-section give a more feasible site for the placement of placenta but we didn't found any association with increasing number of C-section. 74.5% with previous 1, 20.4% with previous 2, and 5% with previous 3. This is against finding of the study of AYESHA SHAOKAT [21] who found that the risk of P.P increases with increasing number of C-section and other studies [19] [22].

There is increased risk of abnormal adherence of placenta in women with placenta previa and previous C-section. Studies show that Placenta accreta occurs in approximately 1:1000 deliveries with a reported range from 0.04% rising up to 0.9%. [20]. Our study showed 31 out of 98 patients (31.6%) with abnormal adherence of placenta.

Another study Found 48.5% abnormal adherence [21]. In the present study the most common type of abnormal adherence was Increta, 10.2% was accreta while SHAOKAT found 27.2% were accreta which is more than two fold in compare to our study [21].

In the present study 48% of our patients had complete placenta previa and the second most common was low lying P.P (32.7%).

Marginal P.P and partial P.P were the third and fourth common type, this is similar to other studies [21] [23].

According to our study 23.5% women with P.P are gravid > 3 while SHAOKAT found 60.6% women with P.P are gravid > 5 [21].

In the present study the mean age of patients was 30 years and the mean gestational age was 34 w + 6 days. History of previous abortion was 26.5%. In other studies the percentages of previous abortion were significantly higher in women with P.P [24] [25]. The increase male baby incidence with P.P has been found in our study which is accordance with previous studies [21] [23] [26] and [27]. We didn't find any fetal anomaly in this study. Ananth CV conclude that there is a strong association between having a previous C-section delivery, spontaneous or induce abortion. In the study of SHAOKAT 48.8% of women had previous history of abortion and D&C. [21] [28].

Regarding the maternal complications, 21 out of total 98 patients underwent hysterectomy and 16 out of total 21 hysterectomies patients had abnormal adherence of placenta. 33% (7 cases) had accreta, 14.2% (3 cases) had Increta and 28% (6 cases) had percreta.

5. Conclusion

Findings of this study showed that frequency of placenta previa was 3.63% among patients with history of pervious cesarean delivery. 74.5% of patients with placenta previa had history of one previous C-section and the rate of the need for hysterectomy in these patients was 47.6%. The most common type of abnormal placentation was accreta, percreta and increta respectively.

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