ORIGINAL ARTICLE

Association between Placenta Accreta and History of Previous C-Section and position of Placenta in Pregnant Women presenting at A Public Sector Hospital of Punjab, Pakistan: a cross-sectional analysis

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ABSTRACT

Background: Placenta accreta is a rare and life threatening disease during pregnancy and causes must be sorted out for its early diagnosis and treatment.
Aim: To find the association between placenta accreta and history of previous C-section in pregnant women.
Methods: This analytical cross-sectional survey was conducted at Radiology department of DHQ teaching hospital Gujranwala from 1st January, 2022 to 31st March, 2022. A self-administered questionnaire was filled by the pregnant women at the gynecology and obstetrics outdoor department. Data was analyzed by using SPSS-Version 26.
Results: AFI and age were found to be normally distributed while all other variables were non-normally distributed. Mean ± S.D of AFI was 10.75 ± 3.99 while mean ± S.D for age were 27.05 ± 3.90. Median ± IQR for gestational age of the study participants was 33.1 ± 8.98. While median ± IQR for body weight and heart rate of the study participants were 2052 ± 1632 and 147 ± 11 respectively. The association of the placenta accreta with history of C-Section was found to be highly statistically significant in our study (P=0.012).
Conclusion: It was evident from our study that plecenta accreta was associated with history of C-Section hence the multiparous with history of C-Section should undergo repeated scans for early diagnosis of placenta previa and the patients also need to have a proper follow-up as per consultant's advice.
Key words: C-section, Placenta Accreta, Pregnancy.

INTRODUCTION

The world is turning into a technology hub as the days go by but the importance of maternal health during the pregnancy has still the same importance as it was decades ago. Countries providing better healthcare to the public generally and women specifically are still rated among the better countries to live. Out of a short list of dangerous and life threatening complications during pregnancy Placenta Accreta has always been consultants don't want to happen in during pre-term period[1]. In this disease the embryo is implanted at the lower end of the uterus instead of the upper middle part and it often obstructs the internal os[2]. There are three types of placenta accreta including placenta accreta, placenta increta and placenta percreta[2]. It's a life threatening problem faced by fetus because of early miscarriages and also dangerous to mother because of excessive blood loss[3]. Literature review shows us that placenta accreta occurs one among every 250 pregnancies[4].

Placenta accerta is reported to be associated with placenta previa by some studies[4,5]. Pakistan is lacking behind in providing proper medical care during pre-term period to the pregnant women. Maternal mortality rate (MMR) has always been a great concern here and placenta accreta is one of the reasons behind high MMR[5]. Previous studies have shown that different factors in the obstetric history of the pregnant ladies may contribute to the development of abnormal fetus implantation[6]. These factors include the history of abortions, C-sections, eclampsia and pre-eclampsia[6]. Out of these the history of C-section is one of the common factors sorted out by the researchers in causing placenta accreta. Unfortunately the incidence of placenta accreta is also increasing among primary gravidas[7].

The literature showing the associations or correlations between placenta accreta and other factors in history is lacking in Pakistan. Hence our study is aimed at to find the association between placenta accreta and history of previous C-section in pregnant ladies presenting at a public sector hospital of Gujranwala.

MATERIALS AND METHODS

This analytical cross-sectional survey was conducted at Radiology Department of DHQ teaching hospital Gujranwala from 1st January, 2022 to 31st March, 2022. A self-administered questionnaire was filled by the pregnant women at the gynecology and obstetrics outdoor department. The questionnaire was validated by senior faculty members and then applying Crohn Bach's Alpha. One question was removed after validation. Convenient sampling technique was used. Sample size was calculated by following formula;

$$N = \frac{z_{\alpha/2}^2 * p * (1 - p) * DEFF}{d^2}$$

Where
α = 0.05
p = 0.67 (8)
DEFF = 1
d=0.10

The inclusion criteria of our study participants was comprised of the pregnant women with uncomplicated pregnancies and matched for age. The pregnant women with history of abortions, eclampsia and pre-eclampsia were excluded from the study. The diagnosis of placenta accreta was made by using ultrasound machine.

Data was analyzed by using SPSS-Version 26. Frequency distributions were calculated for qualitative demographic characteristics. Shapiro-Wilk test was applied to check validity of the quantitative variables. Mean ± standard deviation was calculated for normally distributed variables while median ± interquartile range was measured for non-normally distributed variables. Fisher exact test was applied to check the association between qualitative variables. P value of less than 0.05 was taken as statistically significant. Permission was granted to start this research from Institutional Ethical Review Board.

RESULTS

We applied the Shapiro-Wilk test for checking normality of our data. AFI and age were found to be normally distributed while all other variables were non-normally distributed. Mean ± S.D of AFI was 10.75 ± 3.99 while mean ± S.D for age were 27.05±3.90. Median±IQR for gestational age of the study participants was 33.1 ± 8.98. While median ± IQR for body weight and heart rate of the study participants were 2052 ± 1632 and 147 ± 11 respectively. The frequency distributions of the other characteristics of the study participants are given below in table 1 while inferential statistics of placental positions according to different variables are given in table 2 and 3. The association of placenta accreta with history of C-Section is given in table 4.

Table 1: Frequency Distributions of General Characteristics of the study participants (n=85).

Variables	Groups	Frequency	Percentage (%)
History of C-Section	C-Section	52	61.2
	Primary Gravida	24	28.3
	SVD	9	10.5
Placenta Accreta	Yes	22	25.9
	No	63	74.1
Presentation	Breech	21	24.7
	Cephalic	63	74.1
	Transverse Left	1	1.1
Placental Position	Anterior	39	42.4
	Posterior	38	43.5
	Fundal	7	8.2
	Lateral	1	1.2

Table 2: Placental position according to previous history of C-Section among study participants (n=85).

History section	Placental Position			
	Anterior	Posterior	Fundal	Lateral
C-Section	28	20	3	1
Primary Gravida	7	14	3	0
SVD	4	4	1	0

P value 0.462*,   *According to Fischer Exact Test

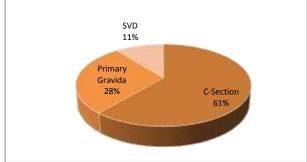Table 3: Placental position according to Fetus presentation among study participants (n=85).

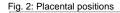| Fetus Presentation	Placental Position			
	Anterior	Posterior	Fundal	Lateral
Breech	9	7	4	1
Cephalic	29	31	3	0
Transverse Left	1	0	0	0

P value 0.206*,   *According to Fischer Exact Test

Table 4: Placenta Accreta according to History of C-Section among study participants (n=85).

Placenta Accreta	History of C-Section			P-Value
	C-Section	Primary gravida	SVD	
Yes	19	1	2	0.012*
No	33	23	7	

*According to Fischer Exact Test

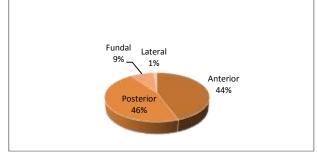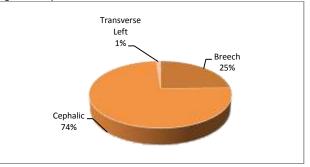Fig. 1: History of C-section

Fig. 2: Placental positions

Fig. 3: Fetus presentation

DISCUSSION

Most of the women of our study group belonged to relatively younger age group (27.05 ± 3.90). As it was a cross sectional study hence the study participants were matched for age. There are recent studies which show that the incidence of C-section among pregnant ladies is on a rise generally in the world as those studies show the benefits of a planned C-Section (9). In contrast we cannot take history of the study participants that whether they had planned C-section or it was done as an emergency measure. A total of 61.2% of the total 85 pregnant ladies had history of C-section.

We also included primary gravida in our study because we wanted to see the placental position and presentation of the fetus and if there was any association present. As far as presentation of the fetus was concerned, majority had cephalic presentation but 24.7% had breech presentation which was higher rate as compared to previous studies. A study recently completed showed that the breech presentation among their study participants was 21.1% though their sample size was larger than ours[10]. Previous studies also show that higher rate of breech presentation was strongly associated with incidence of C-Section[11]. This association was found to be of non-significant value in our study. It could be attributed to the fact that causes of C-section history in our part of the country are different than those found in previous study[12]. The anterior and posterior placental positions were almost of the same percentages in our study group and causes of the higher posterior placental position must be sorted out by conducting the same study on larger population. The unusual higher pregnancy related issues in our part of the world are generally due to illiteracy, non-availability of consultants at the village level and under developed facilities[13].

Though out of total 52 pregnant ladies with history of C-Section only 19 were having placenta accreta but the association of the placenta accreta with history of C-Section was found to be highly statistically significant in our study (P=0.012). There were some studies which had shown the strong association of placenta previa with history of C-Section[14]. Zulifqar et.al, 2021 had shown that placenta accreta was non-significantly associated with history of C-Section but again their sample size was larger than ours[15]. As C-Section is a major surgical procedure hence it is only tried in our region when there is a dire need to do that which may include

the placental abnormalities. Previously the latest C-Section techniques were lacking in Pakistan and also the radiological instrument was not updated in government hospitals (16). It was very difficult to diagnose a pregnant lady with placental abnormalities beforehand and due to which the maternal mortality rate in Pakistan had always remain higher. But as the higher authorities have taken keen interest in development of the healthcare sector in Pakistan, the introduction of the latest ultrasound and MRI scans machines have made it convenient for the radiologists to diagnose the pregnant women with any pre term abnormality. Such infrastructure has always been available in private sector[17] but our study population included the women presenting to public sector hospital of Pakistan. The association of Placental position with history of C-section and fetus presentation were found to be statistically non-significant in ours study group which was in contrary to previous study[18].

Smaller sample size was one of the limitations of our study and also the inability of the patients to have a proper follow-up during ante natal visits was one of the limitations. Future studies on larder sample size can be conducted on the same topic.

CONCLUSION

It was evident from our study that plecenta previa was associated with history of C-Section hence the multiparous with history of C-Section should undergo repeated scans for early diagnosis of placenta previa and the patients also need to have a proper follow-up as per consultant's advice.

Funding: None to declare.

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