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Association between placenta previa with previous caesarean section deliveries

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Abstract
Background: Placenta Previa is a potentially serious obstetric complication where the placenta tissue abnormally lies within the lower uterine segment. It affects approximately 0.5% of all labours. Previous caesarean section, advancing age, multi parity, uterine curettage, myomectomy have all attributed as risk factors for placenta previa, Placenta previa is a major cause of third trimester bleeding. Among all these, the most common factor is previous caesarean section which predisposes abnormal placentation to develop placenta previa. So there is relation between previous caesarean section and placenta previa. This study was done to assess the association between previous caesarean section and subsequent development of placenta previa.
Methodology: Total 300 respondents were selected, among them 150respondents had the history of previous caesarean Section as case group and another150 respondents had the history of previous normal vaginal delivery as control group. Clinical examination and USG was done at term and subjects were followed till delivery. The Study was conducted in Sir Salimullah Medical College and Mitford Hospital from January, 2017 - December 2017.
Results: 06 cases of placenta previa were found in the study group and incidence is 4%compared to 03 cases of placenta previa were found in the control group and incidence is 2% only.

Keywords: placenta previa, parity, placental localization, caesarean section

Introduction
Placenta previa is an obstetric condition characterized by abnormal implantation of placenta into the lower uterine segment, covering whole or part of the cervix. Placenta previa complicates 0.3 to 0.5% of all pregnancies and the major cause of third trimester hemorrhage. The reported incidence is 1 case per 300 to 400 deliveries. Traditionally placenta previa has been categorized into 4 types such as complete placenta previa, partial placentaprevia, marginal placenta previa and low-lying placenta.
It was Paul Portal (1630-1703), a physician at the Hotel Dieu in Paris, who was the first to clearly describe the attachment of the placenta to the lower uterine segment in a case of placenta praevia.
Bunder first suggested that a uterine scar could predispose the mother to the development of placenta previa in subsequent pregnancy. Recent studies by Clark *et al* and Rose and Chapman have confirmed the significant relationship between placentaprevia and previous caesarean section
Risk of placenta previa after a caesarean delivery has been reported to be between 1.5 and 6 times higher than after a vaginal delivery.
The overall prevalence of placenta praevia was 5.2 per 1000pregnancies (95% CI: 4.5-5.9) and the highest prevalence was noted among Asian studies (12.2 per 1000 pregnancies). The objective of the study is to assess the relationship between previous caesarean section and subsequent development of placenta previa.

Methods and Materials
Study area: The study was conducted in Sir Salimullah Medical College & Mitford Hospital, Dhaka, Bangladesh**.**

Study design: The study was prospective observational case control type.

Study duration: The study was conducted from January 2017 to December 2017.

Study population: This study consists of Antenatal mothers attending the Obstetrics and Gynaecology department of Sir Salimullah Medical College & Mitford Hospital, Dhaka, Bangladesh.

Sources of Data: Data were collected from primary and secondary sources.

Sources of Primary Data: Primary Data were collected from the respondents of the study area.

Sources of Secondary Data: Secondary Data were collected from Books, research report, journal, internet etc.

Sampling method: Purposive sampling method was used for the study.

Sample size: Total 300 respondents were selected for the study. 150 respondents were selected who had previous normal vaginal delivery and 150 respondents were selected who had previous caesarean section delivery.

Informed Consent Forms: The informed consent forms were obtained from those who were willing to participate in study.

Inclusion Criteria: Antenatal mothers (2^{nd} and 3^{rd} trimester) of aged from18 to 45 years who has previous normal vaginal deliveries and previous caesarean section delivery were included in the study.

Exclusion Criteria: Patients having previous Myomectomy, Uterine curettage, placental abruption were excluded from the study.

Statistical Analysis

The percentage method was used to analyze the patient distribution based on various parameters. The appropriate statistical parameters were used to calculate the prevalence of placenta previa among the respondents of previous normal vaginal delivery and previous caesarean section delivery. The statistical parameters like frequency and percentage were considered to analyze the patient age & weight distribution. Collected data were analyzed by Computer Program SPSS version 20 (Statistical Package for the Social Sciences)

Results

Table 1: Incidence of Placenta Previa in Patients of Previous vaginal delivery and previous caesarean section delivery

Mode of Deliveries	Frequency	Percent
Previous vaginal delivery n(150)	3	2%
Previous caesarean section n(150)	6	4%

Incidence of Placenta previahas shown in the above table. From the result, it was found that out of 150patients, 3 (2%) faced placenta previa after vaginal delivery. On the other hand, out of 150 patients, 6 (4%) faced placenta previa after caesarean section.

Table 2: Age of the Respondents

Age	Previous Vaginal Delivery n(150)		Previous Caesarean Section n(150)	
	Frequency	Percent	Frequency	Percent
18-24 Years	4	2.66%	3	2%
25-31 Years	46	31%	41	27.33%
32-38 Years	66	44%	67	44.67%
39-45Years	34	22%	39	26%

Age of the Respondents has shown in the above table. From the result, it was found that in case of previous vaginal delivery 44% respondents were in age group 32-38 Years which was maximum, 2.6% respondents were in age group 18-24 years which was minimum, 31%respondents were in age group25-31 years and 22% respondents were in age group 39-45 years. On the other hand, in case of previous caesarean section 44.67% were in age group 32-38 years which was maximum and 2% was in age group 18-24 years which was minimum, 27.33% were in age group 25-31 years and 26% were in age group 39-45 years.

Table 3: Frequency of placenta previa based on parity

Number of Previous Normal Vaginal Deliveries	Number of Patients	Number of Placenta previa	Percentage of Placenta previa
One	60	1	1.6%
Two	50	1	2.0%
Three	40	1	2.5%

Frequency of placenta previa based on parity has shown in the above table. From the result, it was found that out of 60 vaginal delivery 1 (1.6%) respondent suffered placenta previa of parity-1, out of 50 vaginal deliveries

1(2.0%) respondent suffered placenta previa of parity-2, and out of 40 vaginal deliveries 1(2.5%) respondent suffered placenta previa of parity-3. From the result, it is evident that more the parity, more the incidence of placenta previa among normal vaginal delivery respondents.

Table 4: Frequency of Placenta Previa with number of previous caesarean section

Number of previous caesarean deliveries	Number of patients	Number of Placenta previa	Percentage of Placenta previa
One	110	3	2.72%
Two	30	2	6.60%
Three	10	1	10%

From the result, it was found that out of 110 patients 3 patients faced placenta previa after one caesarean delivery as well as parity-1, out of 30 patients 2 patients faced placenta previa after two caesarean deliveries as well as parity-2 and out of 10 patients 1 patient faced placenta previa after three caesarean deliveries as well as parity-3. It is evident that more the number of caesarean sections and more the parity- the more was the incidence of placenta previa.

Table 5: Distribution of Placental localization

Placental Position	Previous Vaginal Delivery n(150)		Previous Caesarean Section n(150)	
	Frequency	Percent	Frequency	Percent
Placenta previa	3	2%	6	4%
Antero-fundal	88	58.66%	86	57.33
Postero-fundal	59	39.34%	58	38.67
Total	150	100%	150	100%

Frequency of placenta previa based on placental localization has shown in the above table. From the result, it was found that in case of Previous vaginal delivery 2% respondents suffered from placenta previa but 4% respondents suffered from placenta previa in case of Previous caesarean section. In case of Previous vaginal delivery 58.66% respondents found antero-fundal placental localization but in case of previous caesarean section 57.33% respondents found antero-fundal placental localization. In case of Previous vaginal delivery 39.34% respondents found postero-fundal placental localization but in case of previous caesarean section 38.67% respondents found postero-fundal placental localization.

From the result, it is evident that there is no significant difference of the antero-fundal and postero-fundal positions of placenta between the respondents of previous vaginal delivery and previous caesarean section deliveries. But significant difference of placenta previa between the respondents of previous vaginal delivery and previous caesarean section deliveries.

Discussion

The overall incidences of placenta previa in large scale studies done in different countries were found 0.2 to 0.5%. But it is more in Bangladesh population and within this sub-continent. Different researchers compared the incidence of placenta previa among the women having previous normal delivery and previous caesarean section.

Mona Lydonet. al found 0.25% placenta previa in previous vaginal delivery and 2.5% in previous caesarean delivery. Nielsen *et al*. found 0.25% placenta previa in previous vaginal delivery and 1.22% in previous caesarean delivery and Swetha, B (2016) [3] found 1.75% placenta previa in previous vaginal delivery and 6% in previous caesarean delivery. In our study it was found 2% placenta previain vaginal delivery and 4%in caesarean section.

From Sweta B. (2016) study, it was found that the percentage of placenta previa with 1 previous caesarean section was 2.63%, with 2 previous caesarean section 16.6%. Another similar study conducted by Aysha Shaukatet. al (2008) found the incidence of placenta previa among women with 1 previous caesarean section was 3.5%, with 2 previous caesarean section was 22.5% and 3 previous caesarean section was 28% and 4 previous caesarean section was 50%. From the study of Ihab M. Usta et. al. (2005) [10], it was found the incidence of placenta previa with 1 previous caesarean section was 1.9%, with 2 previous caesarean section was15.6%.

In our study it was found that the incidence of placenta previa with 1 previous caesarean section was 2.72%, with 2 previous caesarean section was 6.60%, and with 3 previous caesarean section was 10%. All the studies show the increasing trend of incidence of placenta previa with increasing number of previous caesarean section delivery.

From Halimi S, (2011) [9], it was found that the incidence of placenta previa was 55.75% in 31-40 years age group and in our study it was found that the incidence of placenta previa was 44.67% among the age group 32-38 years.

From Halimi S, (2011) [9] it was found that the incidence of placenta previa was 0.41% in one parity and 0.53 in two parity and 0.96 in three parity and 2.37 in 4 or more parity. In our study the incidence of placenta previa in case of caesarean section delivery was 2.72% in one parity, 6.60% in two parity and 10% in three parity. But in

case of previous normal vaginal delivery the incidence of placenta previa was 1.6% in one parity, 2.0% in two parity and 2.5% in three parity. So more the parity, more the incidence of placenta previa.
From our study, it was found about placental localization that there is no significant difference of the antero-fundal and postero-fundal positions of placenta between the respondents of previous vaginal delivery and previous caesarean section deliveries. But, there is the significant difference of placenta previa between the respondents of previous vaginal delivery and previous caesarean section deliveries.
Parvin1 Z (2017) [16] in their study found that in most of the patients the placental localization was antero-fundal in 90 (60%) patients and 44 (29.33%) patients had postero-fundal position which is analogous with our study.

Conclusion

In conclusion, it can be said that the incidence of placenta previa is more with the history of previous caesarean section than with the history of previous normal vaginal delivery. It is also found that the chance of placenta previa increases with the successive increase in the number of caesarean section delivery. Another result found that more the parity, more the incidence of placenta previa. All these reveal that there is a strong association between the previous caesarean section & subsequent development of placenta previa.

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