

THE RELATIONSHIP OF PLACENTA ACCRETA SPECTRUM WITH PREVIOUS CESAREAN SECTION IN PATIENTS WITH PLACENTA PREVIA- A CASE-CONTROL STUDY IN TERTIARY CARE HOSPITAL OF PESHAWAR

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ABSTRACT

Objective: To determine the relation of placenta Acreta Spectrum with previous Cesarean section in patients with placenta previa.

Material and Methods: This case-control study was conducted in a tertiary care hospital in Peshawar from 1st July 2019 to 30th June 2021. All the cases with placenta Previa were included. Women with placenta Acreta Spectrum diagnosed on obstetric ultrasound served as cases. Patients with placenta previa without accrete served as controls. Their records were studied in detail and all the data was recorded in a Proforma specially designed for this study. Odds ratios at the end of the study were calculated using SPSS-23.

Results: During our study period, a total of 102 patients with placenta previa were enrolled. The ages ranged between 20-45 years. The majority of the patients were > 40 years old (31.3%). On the basis of gravidity, different groups were found i.e. 45 patients (44.1 %) were between G5-G6. A total of 14 women were found with placenta accrete spectrum making an incidence of 13.72%. Of all the patients' i.e. 100% (odd ratio 1.1) were having a history of previous Cesarean birth. 6 out of 14 patients (42.8%) had a history of previous 1 Cesarean section while two patients (10%) had a history of 4 c/s in the past. Nearly all patients had major placenta previa except one patient who had minor placenta previa (7%).

Conclusion: Our study highlighted the striking relationship of placenta Accreta spectrum with previous Cesarean delivery in patients with placenta previa however it was not found that increasing the number of previous Cesarean sections resulted in an increased number of placenta Accreta spectrum.

Keywords: Placenta Accreta spectrum, Cesarean section.

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INTRODUCTION

The World Health Organization reported that in 2007 approximately 295000 maternal deaths occurred during the antenatal and postnatal period. Mostly low and middle-income countries were affected where about 810 deaths occurred on daily basis from preventable perinatal complications¹. Worldwide obstetric hemorrhage is considered the leading cause of maternal mortality. Among the etiologies of peripartum hemorrhage, the Placenta

Accreta spectrum is placed on the top. Placenta Accreta spectrum, PAS, which includes both adherent placenta (placenta Accreta) and invasive placental disorders (placenta increta and percreta) is the nightmare of obstetricians^{2,3} and was first described eighty years ago as a clinic pathological diagnosis in which the placenta fails to separate from the uterine wall partially or completely. With the passing years, there has been an exponential rise in the number of cases of placenta accrete spectrum and in recent years it has risen from 1 in 2500 to 1 in 500 cases. This rise is mostly attributed to the rising number of Cesarean sections. Other than that, the rising maternal age, the introduction of in vitro fertilization, and increase in the smoking have contributed significantly to this life-threatening condition⁴. Therefore, the identification of high-risk patients is important for early diagnosis and management. Placenta Accreta spectrum is a term used by FIGO in consensus with the RCOG, defined as the penetration of the trophoblastic tissue through the deciduas basalis into the

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underlying uterine myometrium, the uterine serosa or even beyond, extending to the pelvic organs. The preoperative diagnosis of placenta accrete spectrum can be made as early as the second trimester using the color flow Doppler ultrasound by an experienced sonologist. Magnetic Resonance Imaging is also utilized in its diagnosis with equal sensitivity and specificity. Confirmatory diagnosis is made intraoperatively when exploration is done to deliver the placenta spontaneously or with simple cord traction. However, the gold standard for its diagnosis is the histopathological examination.

There is no consensus about the optimal protocol for the management of the placenta accrete spectrum. The Conservative approach can be used in women without significant hemorrhage and where fertility needs to be preserved but it comes with the cost of delayed postpartum hemorrhage and maternal sepsis^{5,6}. When conservative management is successful, it results either in the gradual resorption or delayed delivery of the placenta⁷. Among conservative management, methotrexate is the most common and simple approach, based on the fact that it leads to rapid involution of the placenta. Traditionally cesarean hysterectomy at the time of delivery is a safe procedure for the mother. But this results in the loss of fertility as well as is associated with perioperative risks⁸. The presence of the placenta Accreta spectrum is associated with major pregnancy complications. The immediate and most common complication of the placenta Accreta spectrum is the post-partum hemorrhage during an attempt at manual removal of the placenta or during the surgical excision of PAS with the invasion of the extra uterine organs and the cesarean hysterectomy⁹. It is also known to increase the risk of maternal death¹⁰. Patients have to undergo extensive lifesaving surgical procedures such as perioperative hysterectomy, ligation of major pelvic vessels, and massive blood transfusions. As there is a global rise in the rates of Cesarean section (between 0.01% to 1.1% of pregnancies)^{11,12,13,14} and so concurrently the prevalence of PAS is also on the rise. We felt the need to design this study and determine the current relationship between PAS and previous Cesarean birth in our population. The findings of this study will alert our Gynecologist to note the importance of previous Cesarean sections, and timely diagnosis and hence manage the placenta Accreta spectrum more efficiently.

MATERIALS AND METHODS

The study protocol was reviewed by the Ethical Review Board which granted approval and access to the medical record of the Gynae department at Khyber Teaching hospital Peshawar. The study period was from 1 July 2019 to 30th June 2021. All women with ages 18 to 45 years with Placenta previa were included in the study. The diagnosis of PAS was made on the transabdominal and transvaginal ultrasound which are complementary

diagnostic technologies. In some cases, operative findings also helped to reach the diagnosis of PAS. The histopathology tool for the diagnosis was not recorded as it was not available in all the cases. Patients younger than 18 and those with normal imaging studies were excluded from the study. Similarly, a history of smoking was also not included as our patients usually do not smoke. Also due to social reasons, our history does not include this risk factor. Details about the previous Cesarean birth were recorded especially the number of previous Cesarean sections. All other patient data including age and parity was recorded and entered in the proforma especially designed for this study. Data was entered and analyzed by SPSS version 23 computer-based software programs.

RESULTS

The demographic features of the patients are shown in table 1 and table 2. The total number of cases of placenta previa and those with placenta Accreta presented to Gynae "C" Unit KTH between 1st July 2019 to 30th June 2021 are shown in table 3.

Amongst 102 cases, the total numbers of Placenta Previa with Accreta were 14 and without Accreta was 88. All 14 Placenta Previa cases with Accreta had a history of previous C/Section scar. None of the cases of Accreta were reported without a history of previous C/section scar (figure 1). 6 Patients with Placenta Previa and Accreta had a history of Previous 1 C/section, 3 Patients had a history of Previous 2 C/section, 3 Patients had a history of Previous 3 C/section while 2 Patients had a history of Previous 4 C/section (Figure 2).

Thirteen cases of Placenta Previa had Major Placenta Previa and only 01 case had Minor Anterior placenta Previa. In our study, Placenta Accreta is found in 14 cases with Placenta Previa. However, it was not found that increasing the number of previous Cesarean sections resulted in an increased number of placenta Accreta spectrum.

DISCUSSION

Previously referred to as morbidly adherent placenta is now called placenta accrete spectrum or abnormal invasion of the placenta (AIP)¹⁵ and includes placenta increta, placenta Percreta and Placenta Accreta. It is becoming more common and has significant morbidity and mortality. Among several risk factors, the most common is previous Cesarean delivery. The increasing rate of placenta Accreta spectrum can be related to the increased rates of Cesarean sections over the past four decades¹⁶.

In the last 2 years, we managed 102 patients with the antenatal diagnosis of placenta previa. The Placenta Accreta spectrum was found in 14 cases. The striking association of past Cesarean scar was found in 100% of cases of PAS. Thus, none of the patients with placenta Accreta was found without having a history of the previous c/

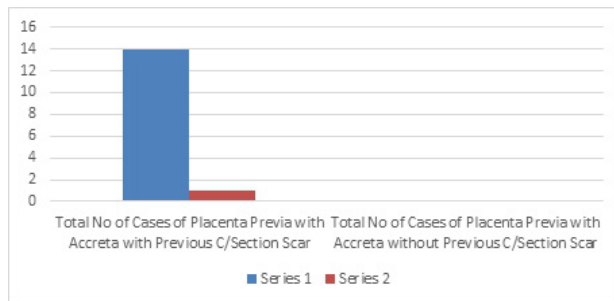


Fig 1: Association between Previous C/Section Scar and Placenta Accreta in patients with Placenta Previa

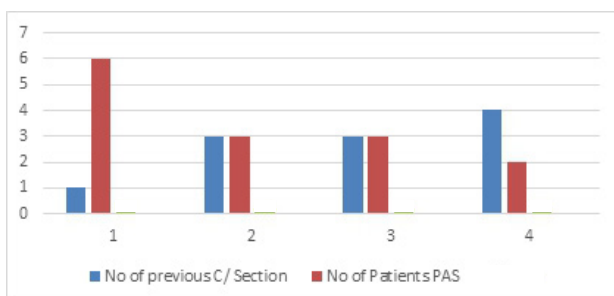


Fig 2: Effect of the number of Previous C/Section on PAS

Table 1: Patient groups according to age.

Age Group in Years	Number (%)
20-25	10 (9.8%)
26-30	10 (9.8%)
31-35	20 (19.6%)
36-40	24 (23.5%)
> 40	32 (31.3%)

Table 2: Patient groups according to gravidity

Gravida	Number (%)
G2-G3	26 (25.5%)
G4-G5	31 (30.4%)
G5-G6	45 (44.1%)

Table 3: cases diagnosed as placenta previa and placenta Accreta

Total No of cases of Placenta Previa	102
Total No of cases of Major Placenta Previa	94
Total No of cases Minor Placenta Previa	08
Total No of Placenta Previa with Accreta	14
Total No of Placenta Previa without Accreta	88

section. The incidence of PAS increases as the number of previous Cesarean deliveries increases, i.e. 0.3% in one Cesarean section while 6.79% in the case of ≥ 5 Cesarean sections in the past.^{17,18}

In our study, a striking difference has been noted.

The number of patients with PAS decreased as the number of previous Cesarean birth increased (shown in the figure-2). Our six patients with PAS had a history of previous C/S while only 2 patients had previous four C/S.

This is important to note that recent epidemiological studies have challenged the previous association between the number of previous Cesarean sections and the risk for PAS, confirming that there is a plateau of risk for PAS after the second C/section^{19, 20, 21}. However much-advanced research is needed in this regard to solve this issue.

Another risk factor associated with PAS is placenta previa. Among the global burden of 5.2 per 1000 placenta previa pregnant women, the highest prevalence has been noted for Asian women²². As already linked with PAS, the previous Cesarean section has been associated with placenta previa. A recent study done by sadietal found a history of the previous Cesarean in about 60.30% of her patients with placenta previa²³. In our study, the incidence of past Cesarean delivery was found in 100% of patients with placenta Accreta spectrum i.e. all 14 patients had a history of the scarred uterus. In international studies, the incidence of PAS in the absence of previous Cesarean section has been found very low i.e. 3%¹⁶. Thus, placenta previa when associated with multiple prior Cesarean sections is the strongest risk factor for PAS. In case of such significant history, the obstetricians should be vigilant enough to diagnose and timely manage it antenatal.

CONCLUSION

Our study highlighted the striking relationship of placenta Accreta spectrum with previous Cesarean delivery in patients with placenta previa (100%, odd ratio 1.1), however, it was not found that increasing the number of previous Cesarean sections resulted in an increased number of placenta Accreta spectrum.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Bukhari NQF: Concept, design, data collection

Nazneen S: Data collection, writing, review

Mazhar T: Data collection, review

Kareem R: Concept, review

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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