

Maternal outcomes in placenta accreta spectrum (PAS) at tertiary care hospital

Maryam Yasmin¹, Fakhar-Un-Nisa², Maria Pervez³, Robina Jalal^{*4}, Naeem Akhtar Khokhar⁵, Amna Begum⁶

¹Gynaecologist, Lady Reading Hospital Peshawar

²MBBS, FCPS, Obs & gynae senior registrar, PSAQSJ GIMS Gambat

³Obstetrician and Gynaecologist Lady reading hospital Peshawar, Assistant consultant at Maroof international Hospital Islamabad

^{*4}Lady Medical Officer, Gynae Unit 3 Sandeman provincial Hospital Quetta

⁵MBBS, FCPS Consultant Gynaecologist MNCH GIMS/THQ Mehar

⁶FCPS.MBBS Consultant Gynaecologist Assistant professor Pir Sayed Abdul Qadir Shah jilani institute of medical sciences Gambat

***Corresponding Author:**

Robina Jalal

Email ID: drrobinajalal@gmail.com

Cite this paper as: Maryam Yasmin, Fakhar-Un-Nisa, Maria Pervez, Robina Jalal, Akhtar Khokhar, Amna Begum, (2025) Maternal outcomes in placenta accreta spectrum (PAS) at tertiary care hospital. *Journal of Neonatal Surgery*, 14 (32s), 9181-9185.

ABSTRACT

Background: A severe obstetric disease that has been receiving more attention recently because of its increasing prevalence is placenta accreta spectrum disorder (PAS). It has a major effect on the health of the mother and the newborn.

Objective: The aim of this study was to determine the maternal outcomes in placenta accreta spectrum.

Materials and method: The present cross- sectional study was conducted at the gynecology department Lady Reading hospital Peshawar form November 2024 to April 2025 after taking approval from the research committee of the hospital. The sample size was determined through WHO calculator and was 41. For sample collection non probability method was used. Pregnant women of different age groups diagnosed with PAS were included in this study. Before data collection in elective cases and following surgery in emergency patients, consent was obtained. The research assessed maternal outcomes. The placenta remained intact since it was impossible to remove owing to the considerable involvement of the bladder. A proforma that had been previously created was used to record the maternal and fetal outcomes. The variables were shown as means, standard deviation, frequency, and percentages. To determine the relationship between different parameters and maternal outcome, the chi square test was used. A 0.05 p-value was considered significant.

Results: A total of 41 pregnant women with placenta accreta were included out of which 14(34.1%) cases had cesarean section and 27(65.8%) had emergency delivery. The majority of participants 34(82.9%) of the overall study population were 21-30 years followed by age group 30 or above 4 (9.7%) and age group 20 years 3 (7.3%) respectively. 14 (34.1%) of the patients received multidisciplinary care from cardiovascular surgeons and urologists. 3 (7.3%) had ureter and bowel injury, while 6 cases (14.6%) involved bladder damage. 26 patients (63.6%) experience blood loss and needed blood transfusions . 13 (31.7%) individuals had a wound infection, and 11 (25.7%) underwent reopening laparotomy. Following surgery, 53.6% needed to remain in the hospital for more than seven days. 5 (12.1%) of the newborns began their lives in the neonatal intensive care unit, while 19 (46.3%) mothers were sent to the critical care unit. Two (4.8%) moms lost their lives during the delivery process. There was no discernible correlation between maternal outcome and factors such as organ damage, reopening laparotomy, MDT presence, or kind of caesarean section.

Conclusion Our study concluded that placenta accreta spectrum is associated with significant maternal morbidity and mortality and its most prevalent maternal complication is hemorrhage.

Keywords: Placenta accreta spectrum; Frequency; Maternal complication; Mortality

1. INTRODUCTION

A severe obstetric disease that has been receiving more attention recently because of its increasing prevalence is placenta accreta spectrum disorder (PAS). It has a major effect on the health of the mother and the newborn. The abnormal invasion of the placenta into the uterine wall is the disorder's defining feature, and it may result in issues including bleeding and the necessity for surgical procedures like a hysterectomy.¹⁻² Based on the degree of placental invasion, the disease is divided into three types: accreta, increta, and percreta. Each kind has unique care guidelines and challenges.³ The rise in caesarean section rates is primarily responsible for the rising prevalence of PAS worldwide.⁴⁻⁵ According to recent research, throughout the last several decades, the frequency has increased from 1 in 2600 pregnancies to 1 in 550 pregnancies.¹ According to a research done in Egypt, the incidence rate was 0.91%.² Despite the paucity of data specifically related to Asia, the growing tendency is a worldwide issue that has to be addressed right now. Although the precise cause of PAS is yet unknown, abnormalities in the uterine decidua basalis layer are the major contributing factor. The problem is caused by the trophoblastic tissue penetrating this layer and entering the uterine myometrium below.¹ Maternal age above 32, a history of numerous caesarean deliveries (≥ 2), multi-parity (≥ 3), & previous experiences of placenta previa are among the risk factors for PAS that have been discovered.⁶ The effects of PAS on maternal health are very severe and may need for intricate and dangers therapies. Obstetric hemorrhage, a disorder that may quickly worsen and become life-threatening, is around of the most concerning maternal hazards connected to PAS.⁷⁻⁹ According to studies, moms with PAS lose an average of 3000-5000 mL of blood, which is much more than the normal amount of blood lost after delivery.¹ Multi-organ failure and disseminated intravascular coagulation are two further cascade consequences that are often brought on by this increased risk of bleeding. Up to 90% of moms with PAS therefore need blood transfusions, & many also need to be admitted to critical care facilities for advanced hemodynamic support and monitoring. The main risk factor for neonates is iatrogenic preterm, which is often inevitable as a result of maternal problems. Among other consequences, premature babies are more likely to have respiratory distress syndrome, intraventricular hemorrhage, and long-term neurodevelopmental problems.¹ The current study was carried out to determine the Maternal outcomes in placenta accreta spectrum (PAS) at tertiary care hospital

2. MATERIALS AND METHOD

The present cross- sectional study was conducted at the gynecology department Lady Reading hospital Peshawar from November 2024 to April 2025 after taking approval from the research committee of the hospital. The sample size was determined through WHO calculator and was 41. For sample collection non probability method was used taking 95% confidence level, alpha 5%, and proportion of mortality in individuals with morbidly adherent placenta as 8.3.¹⁰ Pregnant women of different age groups diagnosed with PAS were included in this study. Women did not diagnose with PAS, those who were before 28 weeks of gestation, and those who refused to participate in the research were all excluded. A combination of magnetic resonance imaging (MRI) and ultrasound was used to confirm the diagnosis of PAS, and in some cases, surgical confirmation was also obtained. Before data collection in elective cases and following surgery in emergency patients, consent was obtained. These cases were collected during emergencies or from antenatal OPD. As was previously mentioned, the placenta accrete spectrum includes cases in which the placenta adhered abnormally to the uterine muscles and surrounding organs. The research assessed maternal outcomes related to blood loss, blood transfusion, ureter injury, bowel, bladder, and wound infection during surgery, reopening laparotomy, days of hospitalization, intensive care unit admission, death, and newborn hospitalization in the neonatal intensive care unit. Soaked gauzes (calculated by deducting pre-use weight from post-use weight) and blood clots (weighed by standardizing one milliliter of blood to one gram) were used to assess blood loss. In every instance, a caesarean section was performed as an elective procedure or in an emergency. The majority of cases had placenta removal in addition to a complete abdominal hysterectomy. The placenta remained intact since it was impossible to remove owing to the considerable involvement of the bladder. Within a week following the original operation, when the danger of bleeding had decreased, 50 mg of intramuscular methotrexate was administered in these instances. In a few number of cases, cardiovascular and urological colleagues were called upon to perform internal iliac artery ligation & remove the bladder from the cervix. A proforma that had been previously created was used to record the maternal and fetal outcomes. The variables were shown as means, standard deviation, frequency, and percentages. To determine the relationship between different parameters and maternal outcome, the chi square test was used. A 0.05 p-value was considered significant.

3. RESULTS

A total of 41 pregnant women with placenta accreta were included out of which 14(34.1%) cases had cesarean section and 27(65.8%) had emergency delivery. The majority of participants 34(82.9%) of the overall study population were 21-30 years followed by age group 30 or above 4 (9.7%) and age group 20 years 3 (7.3%) respectively. Regarding educational background, 26 participants (63.4%) received their Higher Secondary Certificate (HSC), 10 participants (24.3%) had obtained their Secondary School Certificate (SSC), and 5 individuals (12.1%) had just attended elementary school. 51% of the participants lived in rural settings and 49 % in urban as presented in **table 1**.

14 (34.1%) of the patients received multidisciplinary care from cardiovascular surgeons and urologists. 3 (7.3%) had ureter and bowel injury, while 6 cases (14.6%) involved bladder damage. 26 patients (63.6%) experience blood loss and needed

blood transfusions . 13 (31.7%) individuals had a wound infection, and 11 (25.7%) underwent reopening laparotomy (**figure 1**). Following surgery, 22 women (53.6%) needed to remain in the hospital for more than seven days. 5 (12.1%) of the newborns began their lives in the neonatal intensive care unit, while 19 (46.3%) mothers were sent to the critical care unit. Two (4.8%) moms lost their lives during the delivery process. There was no discernible correlation between maternal outcome and factors such as organ damage, reopening laparotomy, MDT presence, or kind of caesarean section as presented in **table 3**.

Table. Demographic features of the study population	
Age in years	
≤20	3(7.3%)
21 to 30	34(82.9%)
Above 30	4(9.7%)
Education	
Primary	5(12.1%)
SSC	10(24.3%)
HSSC	26(63.4%)
Residence	
Urban	20(48.7%)
Rural	21(51.21%)

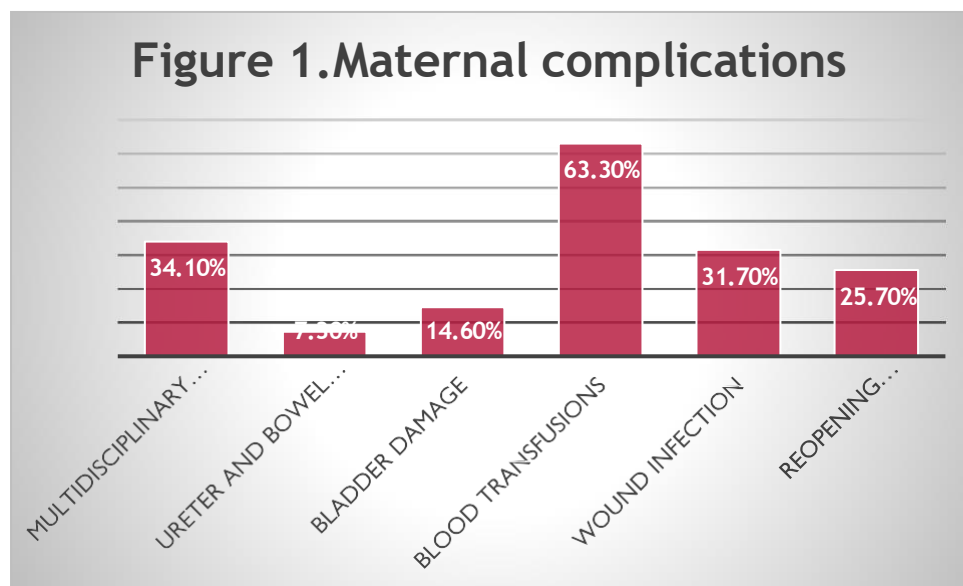


Table 3. Factor association with maternal outcome			
Factors	Mother expired	Mother survived	Value of P
Injury of organ	zero	8	0.5
No organ injury	3	28	
Placenta percreta	2	12	0.05
No percreta	Zero	24	

Re-opening laparotomy	2	9	0.41
No reopening laparotomy	2	26	
MDT present	2	8	0.34
Absence of MDT	1	27	
Emergency cesarean	1	8	0.34
Elective cesarean	1	27	

4. DISCUSSION

The goal of this research was to provide a thorough knowledge of the outcomes for mothers at a tertiary care hospital who have Placenta Accreta Spectrum Disorder (PAS). A total of 41 pregnant women with placenta accreta were included out of which 14(34.1%) cases had cesarean section and 27(65.8%) had emergency delivery. The majority of participants 34(82.9%) of the overall study population were 21-30 years followed by age group 30 or above 4 (9.7%) and age group 20 years 3 (7.3%) respectively. In the present study the age distribution, showed that majority of the participants were mostly between the ages of 21 and 30. This is consistent with previous research showing that women in their late 20s to early 30s had a greater frequency of PAS.¹¹ Another important demographic factor in our study was education, since majority of the participants had earned their Higher Secondary Certificate (HSC). Although the effect of educational attainment on PAS results was not specifically examined in our research, it is important to note that better pregnancy outcomes have generally been linked to greater educational attainment.¹² Additionally, the research found that 65% of participants received regular prenatal care, which is important considering that frequent prenatal visits have been shown to enhance outcomes for the mother.¹³ But the fact that 63.30% of cases need a blood transfusion raises serious concerns and is in line with earlier research showing that PAS patients are at risk for bleeding.¹⁴ Since hemorrhage is a major contributor to maternal morbidity and death in PAS instances, this is an important topic of debate. According to a research published in the American Journal of Obstetrics and Gynecology, women with PAS are far more likely to have bleeding, necessitating quick medical attention, often in the form of blood transfusions.¹⁴ In our study blood transfusion was required in 65% cases. This high transfusion rate is in line with recent research that found that transfusion rates in PAS patients range from 40% to 90%.¹⁵ The fact that blood transfusions are required in such a high percentage of patients emphasizes how serious this illness is and how urgent and efficient care measures are required. In our study 34.1% of the patients received multidisciplinary care from cardiovascular surgeons and urologists. 7.3% had ureter and bowel injury, while 6 cases (14.6%) involved bladder damage. 26 patients (63.6%) experienced blood loss and needed blood transfusions. 31.7% individuals had a wound infection, and 25.7% underwent reopening laparotomy. similar findings were seen in the study conducted by Wasim et al.¹⁶ In the present study 4.8% mother lost their lives during the delivery process. There was no discernible correlation between maternal outcome and factors such as organ damage, reopening laparotomy, MDT presence, or kind of caesarean section. A similar study was carried out by Syed, Wajeeha, et al. in which they reported similar maternal outcomes in pregnant women with PAS.¹⁷ In conclusion, the study offers a thorough comprehension of the maternal & fetal consequences of PAS, identifying both similarities and differences with previous studies. The high prevalence of bleeding and the substantial need for blood transfusions underscore the serious hazards connected to this illness, calling for prompt and efficient care measures. The results highlight the vital need of multidisciplinary methods, proactive treatment, and complete prenatal care in order to reduce risks and enhance outcomes in PAS individuals.

5. LIMITATION OF THE STUDY

The research had a small sample size and was carried out at only one hospital. Therefore, the findings may not be representative of the whole community.

6. CONCLUSION

Our study concluded that placenta accreta spectrum is associated with significant maternal morbidity and mortality and its most prevalent maternal complication is hemorrhage.

REFERENCES

- [1] Piñas Carrillo A, Chandharan E. Placenta accreta spectrum: Risk factors, diagnosis and management with special reference to the Triple P procedure. *Womens Health (Lond Engl)*. 2019; 15:1745506519878081. Doi: 10.1177/1745506519878081
- [2] El Gelany S, Mosbeh MH, Ibrahim EM, Mohammed M, Khalifa EM, Abdelhakium AK, et al. Placenta

- Accreta Spectrum (PAS) disorders: incidence, risk factors and outcomes of different management strategies in a tertiary referral hospital in Minia, Egypt: a prospective study. *BMC Pregnancy Childbirth*. 2019;19(1):313. doi: 10.1186/s12884-019-2466-5.
- [3] Jauniaux E, Ayres-de-Campos D, Langhoff-Roos J, Fox KA, Collins S. FIGO Classification for the Clinical Diagnosis of Placental Accreta Spectrum Disorders. *Obstetric Anesthesia Digest*. 2019;39(4):183. doi:10.1097/01.aoa.0000603652.13759.2c
- [4] Ming Y, Zeng X, Zheng T, Luo Q, Zhang J, Zhang L. Epidemiology of placenta accreta spectrum disorders in Chinese pregnant women: A multicenter hospital based study. *Placenta*. 2022; 126:133-139. doi:10.1016/j.placenta.2022.06.009
- [5] Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, Torloni MR. The Increasing Trend in CaesareanSection Rates: Global, Regional and National Estimates: 1990-2014. *PLOS ONE*. 2016;11(2):e0148343. doi:10.1371/journal.pone.0148343
- [6] Sarojini, V MK, Radhika. Clinical study of placenta previa and its effect on maternal health and fetal outcome. *Int J Reprod Contracept Obstet Gynecol*. 2016;5(10):3496-3499. doi:10.18203/2320-1770.ijrcog20163430
- [7] Mercier AM, Ramseyer AM, Morrison B, Pagan M, Magann EF, Phillips A. Secondary Postpartum Hemorrhage Due to Retained Placenta Accreta Spectrum: A Case Report. *Int J Womens Health*. 2022;14:593-597. doi:10.2147/IJWH.S359857
- [8] Bienstock JL, Eke AC, Hueppchen NA. Postpartum Hemorrhage. *N Engl J Med*. 2021;384(17):1635-1645. doi:10.1056/NEJMra1513247
- [9] Sentilhes L, Goffinet F, Vayssi re C, Deneux-Tharaux C. Comparison of postpartum haemorrhage guidelines: discrepancies underline our lack of knowledge. *BJOG*. 2017;124(5):718-722. doi: 10.1111/1471-0528.14305
- [10] Nazir N, Khan D, Nasrullah FD, Jaleel R. Placenta increta in an unscarred and bicornute uterus. *Pak J Med Sci*. 2023;39(1):304-306. doi: [https://doi.org/ 10.12669/pjms.39.1.6164](https://doi.org/10.12669/pjms.39.1.6164)
- [11] Reeder CF, Sylvester-Armstrong KR, Silva LM, Wert EM, Smulian JC, Genc MR. Outcomes of pregnancies at high-risk for placenta accreta spectrum following negative diagnostic imaging. *J Perinat Med*. 2022;50(5):595-600. doi: 10.1515/jpm-2021-0591
- [12] Bouariu A, Panaitescu AM, Nicolaidis KH. First Trimester Prediction of Adverse Pregnancy Outcomes- Identifying Pregnancies at Risk from as Early as 11-13 Weeks. *Medicina (Kaunas)*. 2022;58(3):332. doi: 10.3390/medicina58030332
- [13] Pyra K, Szmygin M, Dymara-Konopka W, et al. Maternal and perinatal outcomes in placenta accreta spectrum disorders with prophylactic internal iliac artery balloon catheterization and embolization. *Ginekol Pol*. 2022;93(12):980-986. doi:10.5603/GP.a2021.0221
- [14] Yao R, Nguyen HY, Hong L, et al. Regional multidisciplinary team approach to the management of placenta accreta spectrum disorder. *J Matern Fetal Neonatal Med*. 2023;36(1):2190840. doi:10.1080/14767058.2023.2190840
- [15] Wasim T , Bushra N, Riaz S, Iqbal HI. Feto-maternal s12884-019-2466-5.outcome in patients with placenta previa. *Pak J Med* . doi: <https://doi.org>
- [16] Syed, Wajeeha, et al. "Maternal Outcomes in Placenta Accreta Spectrum: Experience at Lady Reading Hospital Peshawar, Pakistan." *Journal of Saidu Medical College Swat* 13.4 (2023): 157-161.