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Original Research Article

Fetal outcome of placenta accreta spectrum disorder patients admitted at Cumilla medical college hospital

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ABSTRACT

Background: Placenta accreta spectrum disorder (PASD) is a complex obstetric condition associated with significant maternal and fetal morbidity and mortality. Despite its increasing global prevalence, there is limited research focusing on the fetal outcomes of PASD patients, particularly in Asian populations

Methods: This observational study was conducted at Cumilla medical college hospital over 18 months, starting from January 2022. A total of 60 patients diagnosed with PASD were included, following specific inclusion and exclusion criteria. Data were collected on sociodemographic characteristics, antenatal care, presenting complaints, and fetal outcomes.

Result: The study found that 90% of the participants had live births, while 10% experienced intrauterine death. Among the live births, there was a nearly equal distribution between low and normal birth weights. The sociodemographic distribution was diverse, with the majority of participants falling within the age range of 21-30 years. Half of the participants received regular antenatal care, and antepartum hemorrhage was the most common presenting complaint.

Conclusions: The study provides valuable insights into the fetal outcomes of PASD patients, with a notably high rate of live births. The findings also highlight the importance of regular antenatal care and early diagnosis in managing PASD effectively. The study serves as a foundation for future research aimed at improving both maternal and fetal outcomes in PASD.

Keywords: Placenta, PASD, Fetal, Disorder, Obstetrics

INTRODUCTION

Placenta accreta spectrum disorder (PAS) is a complex and severe obstetric condition that has been increasingly recognized as a significant contributor to maternal and fetal morbidity and mortality.^{1,2} The disorder is characterized by the abnormal adherence of the placenta to the uterine wall, which can lead to life-threatening hemorrhage during childbirth.^{3,4} Globally, the prevalence of PAS has been on the rise, although estimates vary widely due to differences in diagnostic criteria and healthcare settings.^{5,6} This increasing prevalence is a matter of concern for healthcare systems worldwide, as it places a considerable burden on resources and necessitates specialized multidisciplinary care.^{7,8} In Asia, the

prevalence of PAS is also increasing, reflecting the trends observed globally.⁹ This rise is particularly alarming given the limited healthcare resources in certain Asian countries, which further complicates the management of this condition.⁹ The significance of PAS in the field of obstetrics and maternal-fetal medicine is immense. It is a leading cause of maternal morbidity and mortality, often requiring complex surgical interventions such as cesarean hysterectomy.^{3,4} The condition also poses a considerable risk to the fetus, leading to complications like preterm birth, intrauterine growth restriction, and even fetal demise.^{10,11} The impact of PAS on maternal health is profound and multifaceted. Women diagnosed with or suspected to have PAS often require specialized care, including preoperative planning and management in

tertiary centers experienced in handling surgically complex cases.¹² The psychological impact of the condition is also noteworthy. Women with PAS are at an increased risk of developing psychiatric co-morbidities such as post-traumatic stress disorder, depression, and anxiety disorders.¹³ Similarly, the fetal outcomes in PAS are a significant concern. The condition has been linked to adverse neonatal outcomes, including the need for neonatal intensive care unit admission.¹⁴ Therefore, understanding the fetal outcomes in PAS patients is crucial for optimizing both maternal and fetal health.¹⁵ Given the increasing prevalence and the significant impact of PAS on maternal and fetal health, there is an urgent need for comprehensive studies focusing on fetal outcomes. Such research could provide valuable insights into the management and treatment of this complex condition, ultimately improving the quality of care for women with PAS and their newborns. Moreover, the rising incidence of PAS cases globally is not only a medical issue but also a public health concern. It necessitates the development of standardized protocols for diagnosis and management, as well as public health initiatives aimed at prevention and early detection.^{7,8} In summary, PASD is a critical issue in the field of obstetrics and maternal-fetal medicine. Its increasing prevalence, both globally and in Asia, along with its significant impact on maternal and fetal health, makes it an urgent area of study. The need for specialized care and the psychological impact of the condition further underscores its complexity. Given these factors, there is a compelling need for research focusing specifically on the fetal outcomes in PAS, as this could significantly contribute to improving the quality of maternal and fetal healthcare. The present study aims to provide more relevant information in this exact sector by observing the fetal outcome of PAS mothers.

METHODS

This prospective observational study was conducted at the department of gynecology and obstetrics, Cumilla medical college hospital (CMCH), a tertiary care center in Bangladesh, over a period of 18 months from January 2022 to June 2023. The study population included 60 pregnant women diagnosed with PASD who were admitted to the hospital during the study period. Inclusion criteria for the study were as follows: 1) all patients who were diagnosed prenatally with PAS disorder by means of ultrasound with or without color Doppler study, 2) all patients diagnosed intraoperatively, and 3) patients after 28 weeks of gestation with or without antepartum hemorrhage (APH). Exclusion criteria included: 1) patients before 28 weeks of gestation, 2) those who had APH but no PAS disorder, and 3) patients who were unwilling to be enrolled in the study. Patients with incomplete medical records or who declined to participate were also excluded. The diagnosis of PAS was confirmed through ultrasound and magnetic resonance imaging (MRI), and in some cases, corroborated intraoperatively. Data were collected through a structured questionnaire, which included variables such as maternal age, parity, previous cesarean sections, and other relevant

medical history. Fetal outcomes were also recorded for the purpose of the study. All collected data were analyzed using SPSS version 26. Descriptive statistics were used to summarize the demographic and clinical characteristics of the study population.

RESULTS

Table 1 depicted the sociodemographic distribution of the 60 participants in the study. The age distribution showed that 8.33% were aged 20 or younger, 76.67% fell within the 21-30 age range, and 13.33% were over 30. Regarding education, 18.33% had primary education, 31.67% had completed SSC (Secondary school certificate), and 50% had HSC (Higher secondary certificate) qualifications. The participants came from various socioeconomic classes, with 20% belonging to the lower class, 30% to the lower middle class, 40.00% to the upper middle class, and 10% to the upper class. In terms of residence type, the distribution was evenly split between urban and rural areas, with 50% of participants residing in each category.

Table 1: Sociodemographic distribution of the participants, (n=60).

Characteristics	N	Percentage (%)
Age (In years)		
≤20	5	8.33
21-30	46	76.67
>30	8	13.33
Education		
Primary	11	18.33
SSC	19	31.67
HSC	30	50
Socioeconomic class		
Lower class	12	20
Lower middle class	18	30
Upper middle class	24	40
Upper class	6	10
Residence type		
Urban	30	50
Rural	30	50

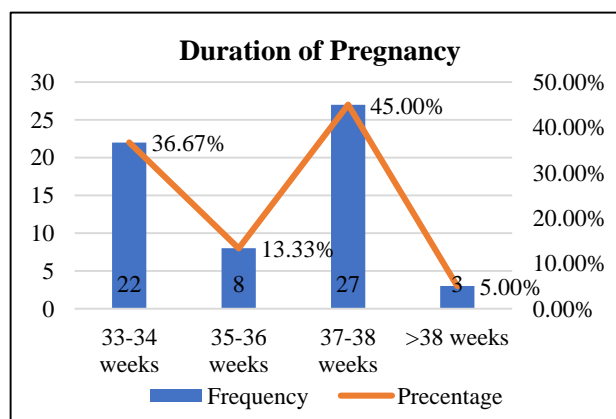


Figure 1: Distribution of participants by week of pregnancy.

Figure 1 illustrates the distribution of participants based on their week of pregnancy. The data shows that the majority of participants, approximately 36.67%, were in the 33-34 week gestational range. Furthermore, 13.33% of participants were at 35-36 weeks of pregnancy, while the largest group, constituting 45.00%, fell within the 37-38 week range. A smaller proportion, 5.00%, were beyond 38 weeks of pregnancy.

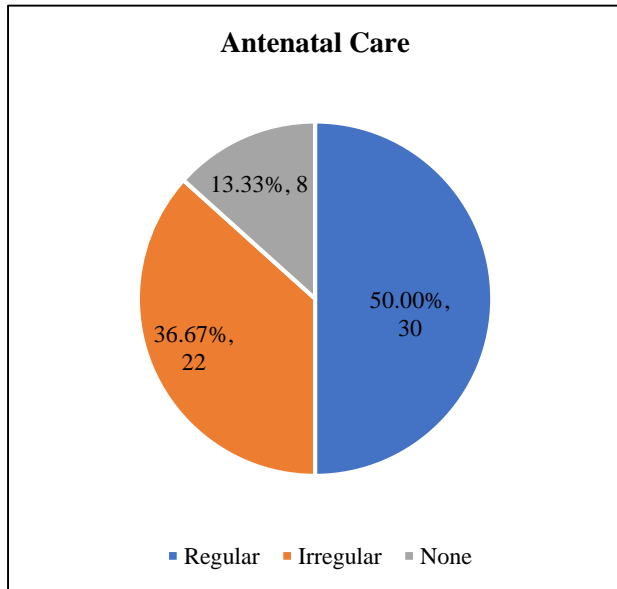


Figure 2: Distribution of participants by history of antenatal care.

Figure 2 provides insights into the distribution of participants based on their history of antenatal care. The data shows that 50.00% of participants received regular antenatal care, reflecting a well-monitored and consistent approach to prenatal healthcare. In contrast, 36.67% of participants had irregular antenatal care, which suggests variability in the frequency and consistency of their healthcare visits. A smaller group, comprising 13.33% of participants, had no antenatal care.

Table 2: Distribution of participants by presenting complaints.

Presenting complications	N	Percentage (%)
Antepartum hemorrhage	19	31.67
Postpartum hemorrhage	2	3.33
Mild anemia	20	33.33
Moderate anemia	14	23.33
Severe anemia	6	10

Table 2 outlines the distribution of participants based on their presenting complaints. The most common presenting complication was antepartum hemorrhage at 31.67%. Postpartum hemorrhage was less frequent, at 3.33%. Anemia in varying degrees was reported by a significant portion of participants: mild anemia in 33.33%, moderate anemia in 23.33%, and severe anemia in 10.00%.

Table 3: History of drug usage among the participants, (n=60)

History of drugs	N	Percentage (%)
Uterotonic drugs	17	28.33
Broad spectrum antibiotics	18	30
Other drugs	1	1.67

Table 3 provides an overview of the history of drug usage among the participants. The data reveals that 28.33% of participants had a history of uterotonic drug usage, which is often administered to induce or augment labor. Broad-spectrum antibiotics were reported by 30.00% of participants, suggesting a relatively high incidence of antibiotic use. Additionally, 1.67% of participants reported using other drugs.

Table 4: Distribution of per-abdominal examination findings.

Findings	N	Percentage (%)
Fundal height		
<28 weeks	3	5
28-32 weeks	14	23.33
32-36 weeks	25	41.67
>36 weeks	19	31.67
Fetal heart found		
Present	20	33.33
Absent	40	66.67

Table 4 details the distribution of per-abdominal examination findings among the participants. Regarding fundal height, 5.00% of participants had measurements indicating a gestational age of less than 28 weeks, while 23.33% fell within the 28-32 weeks range, and 41.67% were in the 32-36 weeks range. Notably, 31.67% of participants had fundal heights suggesting a gestational age of more than 36 weeks. In terms of fetal heart sound, 33.33% of participants had a present fetal heart sound during examination, while 66.67% did not.

Table 5: Distribution of fetal outcome among participants, (n=60).

Fetal outcome	N	Percentage (%)
Live birth	54	90.
Intrauterine death	6	10.

Table 5 outlines the distribution of fetal outcomes among the 60 participants. The majority of participants, constituting 90.00%, experienced a live birth, indicating successful pregnancies with living infants. However, 10.00% of participants faced intrauterine fetal death, signifying a loss of pregnancy before birth.

Table 6 presents the distribution of fetal birth weights among live birth cases (n=54). Among the live births, 46.30% of infants had a low birth weight, weighing less

than 2.5 kg. Another 46.30% fell within the normal birth weight range, between 2.5 and 3.5 kg. A smaller proportion, 7.41%, were classified as healthy weight, with a birth weight exceeding 3.5 kg.

Table 6: Distribution of fetal birth weight among live birth cases, (n=54)

Fetal weight	N	Percentage (%)
Low birth weight (<2.5 kg)	25	46.30
Normal birth weight (2.5-3.5 kg)	25	46.30
Healthy (>3.5 kg)	4	7.41

DISCUSSION

In the observational study conducted at Cumilla medical college hospital, the sociodemographic distribution of the 60 participants predominantly fell within the age range of 21-30 years, accounting for 76.67% of the study population. This aligns with existing literature that suggests women of reproductive age are most commonly affected by PASD.¹⁶ The educational background of the participants was diverse, with the majority having completed higher secondary education. The socioeconomic status and residence type of the participants were evenly distributed. This diversity in socioeconomic and residential backgrounds could potentially influence the generalizability of the study's findings. In terms of gestational age, the majority of the participants were in the later stages of pregnancy, specifically in the 37-38 week range. This is consistent with the general trend in PASD cases, where the condition is often diagnosed in the third trimester.¹⁷ Antenatal care emerged as a significant aspect of the study, with half of the participants receiving regular care. This is a critical finding, as regular antenatal care is essential for the early diagnosis and effective management of PASD.¹⁸ The most common presenting complaint was antepartum hemorrhage, followed by varying degrees of anemia. These findings are in line with other studies that have identified antepartum hemorrhage as a frequent complication in PASD.¹⁹ The history of drug usage among the participants revealed that a significant proportion had been administered uterotonic drugs and broad-spectrum antibiotics. This suggests a high incidence of medical interventions, which corroborates findings from other studies that report the frequent use of such drugs in managing PASD.²⁰ The per-abdominal examination findings were particularly noteworthy, especially the absence of fetal heart sounds in a significant number of cases. This aspect has not been widely reported in existing literature, making it a significant contribution to the field. Upon close examination of fetal outcomes, the data reveals that a substantial 90% of participants experienced live births. This figure is particularly striking when juxtaposed with existing literature, which often reports higher rates of adverse fetal outcomes in cases of PASD.²¹ The marginally better rate of live births in this study invites further

scrutiny. It raises questions about the specific medical interventions employed, the quality of antenatal care received, and even the unique sociodemographic variables that this study has illuminated. Conversely, the 10% incidence of intrauterine death within the study population is not to be overlooked. This percentage, although lower than some other studies, still represents a significant clinical concern. It necessitates a deeper, more targeted investigation to discern whether these adverse outcomes share common denominators—be it in the realm of antenatal care, presenting complaints, or sociodemographic factors. The data on birth weights among the live births is equally revealing. The study observed a nearly equal distribution between infants with low and normal birth weights. Given that low birth weight is often a harbinger of a range of neonatal complications, including but not limited to respiratory issues and increased susceptibility to infection, this balanced distribution warrants further investigation.²² It prompts questions about the effectiveness of the medical interventions administered or the quality of antenatal care, and it also opens up avenues for exploring other contributing factors that may be at play. In summary, the study serves not merely as an addition to the existing body of literature but as a nuanced, multi-faceted exploration into the complexities of PASD. It aligns with existing research in some respects but diverges in others, offering unique contributions that merit further investigation. The notably high rate of live births and the heterogeneity in the sociodemographic characteristics of the participants stand out as particularly significant findings. These not only enrich the current understanding of PASD but also pose questions that could guide future research in this area.

Limitations

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

In conclusion, this study conducted at Cumilla medical college hospital offers valuable insights into fetal outcomes in PASD. The notably high rate of live births (90%) diverges from some existing literature, inviting further investigation. The 10% incidence of intrauterine death, while lower than some studies, remains a significant clinical concern. Additionally, the balanced distribution of low and normal birth weights among live births warrants further scrutiny. The study's diverse sociodemographic profile adds complexity and generalizability to the findings. Overall, the study not only aligns with but also enriches existing research, serving as a foundation for future investigations aimed at improving maternal and fetal outcomes in PASD.

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