

FETOMATERNAL OUTCOMES OF PLACENTAL ABRUPTION AT A TERTIARY CARE HOSPITAL IN QUETTA, PAKISTAN: A DESCRIPTIVE CROSS-SECTIONAL STUDY

Dr. Hafiza Afifa Choudhary^{*1}, Prof. Dr. Rohana Salam², Dr. Durbibi Abdul Rahman³,
Dr. Samrina Hassan⁴, Dr. Noor Ahmed Khoso⁵, Dr. Muhammad Idrees Achakzai⁶

^{*1,3,4}Ms Obs and Gynae PG, Civil Hospital Quetta, Pakistan

²Head of Department, Obstetrics & Gynaecology, Civil Hospital Quetta, Pakistan

⁵Professor of Neurology, BMCH, Quetta, Balochistan, Pakistan

⁶Associate Professor of Surgery, Postgraduate Medical Institute Quetta (PGMIQ), Pakistan

¹afifach.58@gmail.com, ²rohanadoc@yahoo.com, ³durbibi.shah@gmail.com,

⁴Dr.Samreenbaloch@gmail.com, ⁵drnoorahmedkhosa@gmail.com, ⁶Idreesach@gmail.com

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Corresponding Author: *

Dr. Hafiza Afifa

Choudhary

Abstract

Background: Placental abruption is a life threatening obstetric emergency in which a normally implanted placenta separates prematurely before the delivery of the fetus. It continues to be an important factor in maternal and neonatal morbidity and mortality, especially in developing nations where timely obstetric care may be limited.

Objective: To determine the fetomaternal outcomes among women having presentations of placental abruption in a tertiary care setup.

Methods: This descriptive cross sectional study was conducted in Department of Obstetrics and Gynecology, Sandeman Provincial Hospital, Quetta from August to January 2023. A total of 200 pregnant women diagnosed with placental abruption were recruited by using consecutive sampling. Data were collected on maternal parameters, such as mode of delivery, postpartum hemorrhage, need for blood transfusion, and hospital stay. Fetal outcomes such as low birth weight, fetal distress, perinatal death and APGAR score also were evaluated. The data was analyzed based on frequencies and percentages by using SPSS version no 26.

Results: Out of 200 total women studied, 58.5% delivered vaginally and 41.5% delivered by cesarean section. In 17.0% of the patients, the postpartum hemorrhage was an occurrence and 36.5% received blood transfusion. Length of hospital stay, ≥ 3 days, was seen in 61.5% of the patients. With regards to neonatal outcomes, 36.0% of new-born babies weighed less than average, 20.5% had APGAR score less than 7, 22.0% were at risk of intra-partum complications and 14.5% suffered perinatal death.

Conclusion: Placental abruption has significant maternal and fetal morbidity. Post-partum hemorrhage, transfusion of blood and prolonged hospitalisation are types of significant maternal complications and low birth weight, fetal distress, poor APGAR score, and perinatal mortality are adverse neonatal outcomes. Prompt recognition and management still continues to be important for better fetomaternal outcomes.

INTRODUCTION

Placental abruption, also known as abruptio placentae, refers to the premature separation of a normally implanted placenta from the uterine wall before delivery of the fetus. It is one of the most serious obstetric emergencies and is associated with considerable maternal and neonatal morbidity and mortality. The condition disrupts uteroplacental blood flow, leading to fetal hypoxia and maternal hemorrhage, which can rapidly progress to life-threatening complications if not managed promptly.

Placental abruption referred to as *abruptio placentae* is the condition where the normally attached placenta detaches from the uterine wall before the preeclampsia fetus is born.¹ It's one of the most serious obstetric emergencies and carries significant maternal and neonatal morbidity and mortality. It can cause a disassembly of the uteroplacental circulation, resulting in fetal hypoxia and maternal hemorrhage, and, if left untreated, it can develop into serious and life-threatening conditions within hours.²

It is estimated that preeclampsia occurs at a rate of 0.4% to 1% of pregnancies all over the world. It is a relatively rare event, but this event leads to adverse pregnancy outcomes to their disproportion.³ In the mother's case complications include postpartum hemorrhage, disseminated intravascular coagulation, acute renal failure, transfusion of blood, and unnecessary hospitalisation. Common neonatal complications include low birth weight, premature delivery, low gestational age, use of a neonatal intensive care unit (NICU), delivery of a stillborn infant and one with fetal distress, and low APGAR scores.⁴

Low- and middle-income countries face even higher rates of placental abruption due to delayed access to antenatal care, low maternal nutrition, poor referral systems, and restricted access to emergency obstetric services.^{5,6} Maternal and neonatal health outcomes continue to be a major public health problem in Pakistan, particularly in rural areas having scarcity of health care resources.^{7,8}

The geographical location of Balochistan, along with delayed healthcare seeking behaviour and lack of specialized obstetric facilities, poses a major

challenge to maternal healthcare. Obstetric emergencies like PPRM, placental abruption are therefore often complicated and present late, resulting in poor maternal and neonatal outcomes.^{9,10}

However, there is limited evidence addressing the fetomaternal outcome of placental abruption in Balochistan. Local data is crucial for healthcare planning, as well as for planning of the strategies aimed at reducing maternal and neonatal complications. Thus, the present study was designed to assess the fetal and maternal outcomes in women with a diagnosis of placental abruption in a tertiary hospital, Quetta.

MATERIAL AND METHODS

A descriptive cross sectional study was conducted on patients of Sandeman Provincial Hospital, Quetta from 1 August 2023 to 31 January 2024 from Obstetrics and Gynecology Unit I. The study involved 200 pregnant mothers who has received a diagnosis of placental abruption, after 20 weeks gestation. The sample size was calculated by using WHO calculator and the sampling procedures adopted was non-probability consecutive sampling. Excluded patients were women known to have bleeding disorders, autoimmune disorders, uterine anomalies, abnormal placentation (placental abruption), cardiovascular diseases, diabetes mellitus, or endocrine disorders. Structured data was gathered on a data collection form. After obtaining informed consent, demographic and clinical data were collected confirming diagnosis by clinical examination and ultrasonography. Maternal and fetal outcomes assessed included length of hospital stay, whether the mother required blood transfusion or if she had a postpartum hemorrhage. The outcome parameters evaluated were low birth weight, fetal distress, perinatal death and low APGAR score at 1 minute after birth. The data were entered and analyzed using the SPSS Version 26. Descriptive statistics, including frequencies and percentages were used to present the results. Ethical approval was taken from the IRB department prior to data collection.

RESULTS**Baseline Characteristics**

In all, 200 women with placental abruption were part of the study. 50.0% were 30 years or under and the rest were older than 30 years. The largest

group of women 75.0% were of multigravida level. As for education, 45.0% were illiterate, 20.0% had secondary education and 10.0% had higher education. The maternal weight of 60 kg or more was seen in 71.0% of the cases.

Table 1. Baseline Characteristics of Study Participants (n=200)

Variable	Category	Frequency (n)	Percentage (%)
Maternal Age	≤30 years	100	50.0
	>30 years	100	50.0
Gravida	Primigravida	50	25.0
	Multigravida	150	75.0
Maternal Weight	<60 kg	58	29.0
	≥60 kg	142	71.0
Education	Illiterate	90	45.0
	Primary	50	25.0
	Secondary	40	20.0
	Higher Education	20	10.0

Maternal Outcomes

In the study population, vaginal delivery which accounted for 58.5% of cases, was the most common mode of birth, while cesarean section was used in 41.5% of those who had a vaginal

delivery. Postpartum hemorrhage was the experience of 17.0% of women. Over a quarter of the patients (36.5%) had to undergo blood transfusion. The proportion of 3 days or more for hospitalization was found in 61.5% of cases.

Table 2. Maternal Outcomes Among Women with Placental Abruption (n=200)

Outcome	Category	Frequency (n)	Percentage (%)
Mode of Delivery	Vaginal Delivery	117	58.5
	Cesarean Section	83	41.5
Postpartum Hemorrhage	Yes	34	17.0
	No	166	83.0
Blood Transfusion	Yes	73	36.5
	No	127	63.5
Hospital Stay	≥3 days	123	61.5
	<3 days	77	38.5

Fetal Outcomes

Fetal complications during pregnancy were associated with a high rates of adverse neonatal outcomes. Of which, 36.0% of neonates had low

birth weight. The percentage of perinatal death is 14.5%. Fetal distress was noted as 22.0% and 20.5% of infants had an APGAR score less than seven at one minute.

Table 3. Fetal Outcomes Among Women with Placental Abruption (n=200)

Outcome	Category	Frequency (n)	Percentage (%)
Low Birth Weight	Yes	72	36.0
	No	128	64.0
Perinatal Death	Yes	29	14.5
	No	171	85.5
Fetal Distress	Yes	44	22.0
	No	156	78.0
APGAR Score	<7	41	20.5
	≥7	159	79.5

DISCUSSION

In the present study, the fetomaternal outcome of women diagnosed with placental abruption at a tertiary hospital in Quetta was assessed. The results have confirmed that placental abruption is still a significant obstetric emergency capable of causing serious maternal and fetal complications.¹¹ In this study, vaginal delivery was the most common mode of delivery. This is similar to those studies where most deliveries were not unsafe, but cesarean sections were usually restricted only to those who had fetal compromise or maternal instability.¹² The rate of cesarean section deliveries that occurred during the study also accounts for the emergency case nature of placental abruption and the need of rapid obstetric intervention in selected patients. Postpartum hemorrhage was seen among 17.0% of the women. This discovery makes the importance of this potential hazard to hemorrhage in placental abruption clear.¹³ Rupturing of placenta can lead to excessive bleeding and clotting disorders that can lead to maternal complications. Moreover, over one-third of women had to receive blood transfusion, which highlights the need for available blood products, and effective emergency obstetric care services. A high rate of prolonged hospital stay was recorded in over 60% of patients. An extended hospital stay can be attributed to the several factors: the need for maternal stabilization, monitoring for complications, blood transfusion, and neonatal care. This has also been seen in earlier studies assessing severe obstetric complications.¹⁴ Of the neonatal outcomes, more than one-third of newborns were noted as being low birth weight. When the placenta separates, the decrease in placental perfusion can affect fetal growth leading

to low birth weight. This is similar to the literature that has reported placental abruption to be one of the significant causes of fetal growth restriction and poor neonatal outcomes.¹⁵ Perinatal mortality was a major issue with 14.5% of birthing cases. When a placental blood flow disruption occurs, it can lead to substantial fetal hypoxia and fetal mortality, especially when diagnosis and treatments are delayed. Similarly fetal distress was also noted in about one fifth of cases, thus indicating the severity of fetus oxygenation compromised due to abruption of the placenta.^{16,17} A total of 20.5% of newborns were considered to be in poor condition (with a score of less than 7 according to the APGAR scale). Young neonates with low APGAR scores are very common in the event of placental abruption and may be a surrogate marker for the presence of foetal hypoxia, prematurity and impaired placental function.^{18,19} Overall, the results of this study further demonstrate the serious impact of placental abruption on both maternal and neonatal health, and highlight why early detection, referral and management matter.²⁰

CONCLUSION

The incidence of placental abruption is a still ongoing serious factor in maternal-neonatal morbidity. Perioperative complications that occurred often in this study were: postpartum haemorrhage, blood transfusion and the longer hospital stays. Neonatal complications evaluated were low birth weight, fetal distress, poor APGAR score and perinatal death. The ways to reduce the risk of placental abruption should be diagnosis at an early stage, timely referral, and good emergency

obstetric care to enhance fetal and maternal outcomes.

LIMITATIONS AND RECOMMENDATIONS

However, there are a number of strengths to this study, including the fact that it included 200 confirmed cases of placental abruption, a complete assessment of both maternal and neonatal outcomes data, and data were gathered from a major tertiary level care referral center in a large population. But there are some restrictions, which should be noted. This is a single-center study, so there is a limited generalizability in other settings and a cross-sectional study design does not enable the evaluation of long-term outcomes for the mother and neonate. Also, there is no long-term follow-up of the neonates and results might not be generalizable for those in the community which did not reach tertiary care centres for treatment. According to the above findings, the provision of further inputs for enhancing antenatal services focusing on early detection and management of obstetric complications is recommended. Better referral systems and clearer policies for the treatment of high-risk pregnancies are needed, adequate availability of blood transfusion service in tertiary-level hospitals, and awareness among pregnant women about the warning signs, like vaginal bleeding or abdominal pain are also crucial. In addition, there is a need for multicenter, prospective studies to help better assess maternal and neonatal outcomes related to placental abruption.

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