

Placental abruption: a five-year review of prevalence, risk factors and foeto-maternal outcomes in a Tertiary Hospital, Enugu, Nigeria

Abstract

Background: Placental abruption is one of the major causes of antepartum haemorrhage with high propensity to cause maternal and foetal morbidity and mortality.

Objective: This study assessed the prevalence, risk factors and foeto-maternal outcomes of placental abruption at the Enugu State University Teaching Hospital (ESUTH), South-East Nigeria.

Methods: This was a retrospective cross-sectional study of all cases of placental abruption managed from 1st January 2019 to 31st December 2023 in the Labor ward of ESUT Teaching Hospital, Enugu State, Nigeria. Data were analysis with Statistical Package for Social Sciences software (IBM Chicago) version 28. Categorical variables were presented in frequencies and percentages while symmetrical continuous variables were presented using mean and standard deviations with 95% confidence intervals around the point estimates.

Results: Over the 5-year study period, 10,020 deliveries, and one hundred and seventy-one (171) cases of placental abruption were observed, giving the prevalence of placental abruption at 1.71% or 17.1 per 1000 deliveries. The mean (SD) age and gestational age were 33.5 (± 4.5) years and 37.9 (± 2.3) weeks respectively. Hypertensive disorders of pregnancy (58%), abdominal trauma (15%), retro placental uterine masses (13%), premature rupture of membranes (12%) and previous history of placental abruption (2%) were the isolated risk factors to placental abruption. Three cases of maternal death (2%) occurred and increased operative delivery (74%) and blood transfusion (40%) were the commonest maternal complications while prematurity (38%) and neonatal intensive care unit (NICU) admission (58%) were the fetal complications observed.

Conclusion: The prevalence of placental abruption in ESUTH is 1.71%; with hypertensive disorders of pregnancy being the most predisposing risk factor. Measures to prevent and effectively manage hypertensive disorders of pregnancy are advocated to change the burden of placental abruption.

Keywords: placental abruption, prevalence, risk factors, outcomes, ESUTH

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Introduction

Placental abruption also called abruption placentae is a dire obstetric emergency that is defined as the partial or total separation of a normally sited placenta after the age of viability but before the delivery of the fetus.^{1,2} Placental abruption is one of the major causes of antepartum haemorrhage and is associated with high maternal and foetal morbidity and mortality.^{3,4} placental abruption is classified in many forms; mild or sever depending on whether the foetus is alive or dead, revealed, concealed or mixed, depending on if the bleeding is visible from the genital tract, not visible from the tract or both.⁵ The concealed type is particularly dangerous because the degree of blood loss does not correlate with maternal vital signs and also has been noted to have higher fetal death compared to the revealed type.⁶ It is also graded from 0 to 3 based on the severity of clinical presentation. Grade 0 is asymptomatic but retroplacental clot is found during delivery; Grade 1 presents with mild symptom, grade 2 presents with moderate symptom while Grade 3 is associated with moderate to severe symptoms in addition to intrauterine fetal death. When grade 3 is associated with coagulopathy, it is termed 3A and without coagulopathy, 3B.⁷

The incidence of placental abruption in developed countries is about 1% of all deliveries, whereas in developing countries it is around 2-8%.⁸ Its occurrence in about 0.6%–1% of pregnancies has also been reported.⁹ Predisposing factors to placental abruption include previous episode of placental abruption (most predictive), hypertensive heart diseases (such as pregnancy-induced hypertension, chronic hypertension, preeclampsia and eclampsia), cigarette smoking, cocaine use, multiparity, young women (<20 years), advanced maternal age (>35 years), uterine over distension (multiple pregnancy, polyhydramnios), uterine anomalies, retroplacental uterine leiomyoma, blunt abdominal trauma, premature rupture of membrane, short umbilical cord, abnormal presentation, external cephalic version, polyhydramnios, and thrombophilic disorder.^{10,11}

The clinical presentation of placental abruption will include vaginal bleeding, abdominal pain, uterine and abdominal tenderness, preterm labor, evidence of hemodynamic instability, fetal distress, and fetal death.¹² The clinical picture in a patient with placental abruption depends on the extent of placental separation and the quantity of vaginal bleeding (whether revealed or concealed).

The diagnosis of placental abruption is largely clinical. Ultrasound is only disposed to excluding placenta Previa since it is insensitive for diagnosis,¹³ due to similar isoechoic appearance of recent retroplacental hematoma with that of the placenta on ultrasonography.¹⁴ Diagnosis is confirmed at delivery by direct visualization of retroplacental clots and indentation of the maternal surface of the placenta.¹⁵

Complications like postpartum hemorrhage, shock, disseminated intravascular coagulopathy, oliguria, anuria and acute kidney injury, increased incidence of operative interference, puerperal sepsis, lactation failure can occur in the mother while fetal complications will include fetal distress, low birth weight, preterm delivery, asphyxia, perinatal death and intrauterine fetal demise.^{16,17} There are paucity of data on placental abruption in Enugu State University Teaching Hospital. Hospital necessitating this study which aimed at determining the prevalence, risk factors, and foeto-maternal outcomes of placental abruption in ESUTH, Nigeria.

Materials and methods

Study design

A retrospective cross-sectional study. The study population was pregnant women that had placental abruption and were managed from 1st January 2019 to 31st December 2023 in the Labour ward of Enugu State University Teaching Hospital, Nigeria. Enugu State University Teaching Hospital is a tertiary health facility in the capital of Enugu State, South-East Nigeria with different cadres of professionals. It is located in the North of Enugu metropolis and serves as a training centre for undergraduate medical students and postgraduate resident doctors as well as a referral center for secondary health care centers and other government owned and private Hospitals in Enugu and neighboring States. Its central location and the efficient medical services delivery in the hospital made it an institution of choice for many patients in the state and its environs.

The total number of deliveries during the review period was obtained from the labour ward and theatre registers. A well designed proforma was used to collect data on sociodemographic/obstetric factors, risk factors, and foeto-maternal outcomes.

Placental abruption is defined as premature separation of normally sited placenta after the period of foetal viability, which is 28 weeks in our setting.¹⁸ Diagnosis was made based on risk factors, clinical features and examination findings on the patients like bleeding per vaginam, abdominal pain, woody hard abdomen and finding of retroplacental cloth following delivery of placenta.

Data collected were analysis with Statistical Package for Social Sciences software (IBM Chicago) version 28. Categorical variables were presented in frequencies and percentages while symmetrical continuous variables were presented using mean and standard deviations with 95% confidence intervals around the point estimates.

Ethical clearance for the study was obtained from the Ethics Committee of the hospital.

Results

About 167 deliveries occur per month in Enugu State University Teaching Hospital with cumulative of 10,020 deliveries and 171 cases of placental abruption over the 5 years of study, giving the prevalence of placental abruption at 1.71% or 17.1 per 1000 deliveries. The mean (SD) age and gestational age were 33.5 (±4.5) years and 37.9 (±2.3) weeks respectively.

Table 1 shows the sociodemographic and obstetrics characteristics of the study participants. Majority of the research participants 72(42%) were between 30-34years of age. The majority of participants (40%) had secondary level of education, followed by 36% who had tertiary level of education and the least number 24% had primary education. Ninety-five (95%) were Christian while 5% were non-Christian. Greater number, 57% had their pregnancy unbooked while only 43% booked for antenatal care in the hospital. Also, more than half 106 (62%) were multiparous parturient

Table 1 Sociodemographic/obstetric characteristics of the study participants

Variables	Number n=171	Percentage
Age (years)		
<20	2	1.2
20-24	5	2.9
25-29	36	21
30-34	72	42
35-39	48	28
>40	8	4.7
Mean age 33.5	SD 4.5	95%CL:33.4,35.8
Mean GA 37.9	SD 2.3	95%CL:34.6,37.3
Parity		
Primipara (1)	60	35
Multipara (2-4)	106	62
Grand multipara(≥5)	5	2.9
Religion	Variable	Percentage
Christian	162	95
Non-Christian	9	5
Educational status		
Primary	41	24
Secondary	68	40
Tertiary	62	36
Booking status		
Booked	73	43
Unbooked	98	57

The commonest risk factor for abruption among the studied parturient was hypertensive disorders of pregnancy and this was noticed in 99(58%) of them. Others were abdominal trauma (15%), retroplacental uterine masses (13%), premature rupture of membrane (12%) and previous abruption (2%) as seen in Figure 1.

Increased operative delivery was the commonest maternal complication observed 126(74%). The next was the need for blood transfusion 68(40%), followed by Postpartum haemorrhage 15(9%), Postpartum anaemia 26(15%), puerperal sepsis 5(3%) and maternal death 3(2%) (Figure 2).

Majority of the foetuses were delivered preterm 65(38%), out of which 55(32%) had low birth weight. Other complications include, birth asphyxia in 38(22%), neonatal intensive care unit (NICU) admission 99(58%) and stillbirth in 51(30%) as depicted in Figure 3 below.

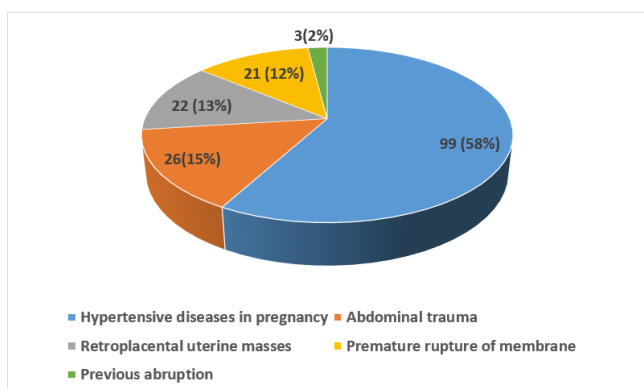


Figure 1 Risk factors to placental abruption.

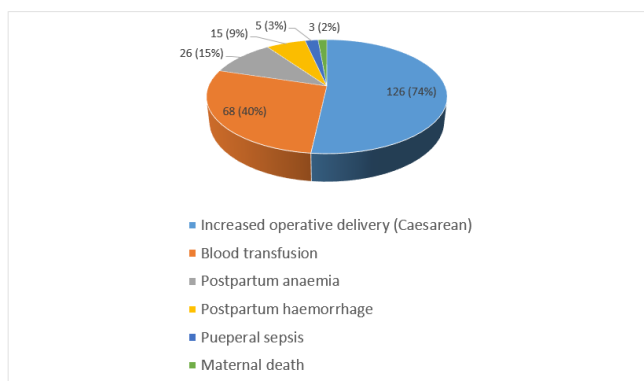


Figure 2 Maternal complications of placental abruption.

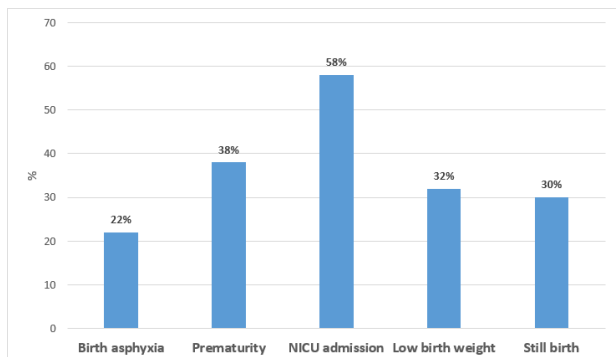


Figure 3 Foetal outcomes/complications.

Discussion

Placental abruption is one of the major causes of antepartum haemorrhage with high propensity to cause maternal and foetal morbidity and mortality.^{3,4} The prevalence of placental abruption at the Enugu State University Teaching Hospital is 1.71% or 17.1 per 1000 deliveries. This finding is similar to the finding of 1.1%,¹⁹ and 1.4%²⁰ reported in North central, and Ghana respectively but higher than 0.5% reported in a previous study,²¹ 0.3% reported in Tanzania,²² 0.48% in a study done in Rivers State,¹⁸ 0.8% in South East Nigeria²³ and 0.34%²⁴ in another study. The high prevalence of abruption placentae in the index study could be due to good recording/record keeping and variation in the number of cases as the institution serves a referral center due to its central location and prompt /efficient service delivery. In the study done in River state where the prevalence of abruption placentae was reported at 0.48, 68 cases of abruption

were discovered over the six years of study as against 171 cases of abruption found in the index five-year study. Similar high value of 2.2% was equally reported in Newi which incidentally shared similar characteristics of being a referral centre like Enugu State University Teaching Hospital. The mean \pm SD age of the participants was 33.5 SD \pm 4.5 and the modal age group was 35-39 years. Multiparous women had more cases of abruption placentae compared with primiparous and grand multiparous women just as documented in previous studies.^{25,26} Similarly, more cases of abruption were found among older women than the younger age affirming the role of increased age in abruption. This finding aligned with similar documented findings in literature.^{27,28} Majority (57 %) of the participants did not book for antenatal care(ANC) just as found in the study done in Enugu and Anambra, south east Nigeria^{23,29} and another in south west Nigeria²⁸ but contrary to the findings of studies done in River State¹⁸ and another in Ramaiah medical college and hospitals, Bangalore, India³⁰ where majority of the studied parturient booked for antenatal care. Enugu State University Teaching Hospital is a referral centre and this could have accounted for high number of unbooked cases in parturients with abruptio placentae.

Concerning the risk factors of abruption placentae, hypertensive disorders of pregnancy were the commonest risk factor for abruption placentae identified among the study parturient, accounting for 58% of cases studied. This aligned with the previous studies.^{18,29,31} Other risk factors identified were abdominal trauma, retro placental uterine masses, premature rupture of membranes and previous history of abruption placentae, corroborating the findings of previous studies.^{26,32}

Increased operative delivery (emergency caesarean delivery) was the commonest maternal complication found in the index study, accounting for 78% of the cases. This was the case in those with live babies since it is the recommended mode of delivery to ensue good fetal outcome. The remaining 23% cases had vaginal delivery and they were both cases of mild abruptio incidentally diagnosed following observation of retro placental clot postpartum and those cases of abruptio with dead babies in relatively stable parturient. This corroborates findings of previous studies.^{18,32} Increased tendencies for blood transfusion is the second commonest maternal complication observed in 40% of the parturient. Similar need for blood transfusion was noted by felix et al that observed rate of 43.9%¹⁸ and Abasi et al that observed transfusion rate of 66.7% among women with abruptio placentae.³³ Other maternal complications observed in this study were postpartum haemorrhage, postpartum anaemia, puerperal sepsis and maternal death. Maternal death was noted in 2% of the study parturient unlike in the study of felix et al that noted no maternal death.¹⁸ These cases of deaths occurred in unbooked patients that presented late to the hospital in a very critical condition highlighting the need for early presentation in all cases of antepartum haemorrhage since some of the cases of abruption could be concealed making the degree of the bleeding not to be an obvious reflection of morbidity in the patient. Puerperal sepsis occurred in 3% of cases and this corroborated with rate of 3.7 % found by Felix et al in Rivers state¹⁸ and Adewole et al in Abuja all in Nigeria.³⁴ Majority of the foetuse 119 (70%) were live births while 51(30%) were stillbirth. This is similar to 52.9% and 41.6% reported by Siddiqui et al in Karachi³⁵ and Abbasi et al in Pakistan³⁶ but lower than stillbirth rate of 4 (5.6%) reported by felix et al in River State.¹⁸ Over two-third of cases of stillbirth was noted among unbooked parturient. The most common foetal outcome was admission into the neonatal intensive care unit (NICU) which accounted for 47.4%. Other observed adverse foetal outcomes were birth asphyxia, prematurity and low birth weight. These findings corroborated those of previous studies.^{18,37}

Conclusion

The prevalence of placental abruption at Enugu State Teaching Hospital is 1.71% with hypertensive disorders of pregnancy being the most common risk factor. Increased operative delivery and blood transfusion were the commonest maternal complications while prematurity and NICU admission were the cases in the foetus. Measures to prevent and effectively manage hypertensive disorders of pregnancy is advocated to change the burden of placental abruption.

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Conflicts of interest

Authors have no competing interests.

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