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Maternal and Perinatal Outcomes of Placenta Praevia at the Rivers State University Teaching Hospital, Port Harcourt

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Authors' contributions

This work was carried out in collaboration among all authors. Author FCCW designed the study, wrote the protocol, took part in data collection, performed the statistical analysis and wrote the first draft of the manuscript. Author GAFCW managed literature searches, and took part in data entry and analyses of the study. Authors USO, IAA, SAO and IFCG took part in the collection of data and literature search. All authors read and approved the final manuscript.

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ABSTRACT

Background: Placenta praevia is associated with high foeto-maternal morbidity and mortality. Aim: To assess the maternal and perinatal outcomes of placenta praevia at the Rivers State University Teaching Hospital (RSUTH).
Methods: A descriptive cross-sectional study of all recorded cases of placenta praevia manage at RSUTH from 1st January 2016 to 31st December 2021. Data were analysed using IBM, Statistical Product and Service Solutions (SPSS) version 25.0 Armonk, NY.

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Results: The most common maternal complication was blood transfusion [128(93.4%)], followed by preterm delivery [49(35.8%)], and postpartum haemorrhage [34(24.8%)]. Three (2.2%) of the participants had Caesarean hysterectomy. There was no case of maternal mortality. There was a male sex preponderance among the foetuses. The mean± SD foetal weight was 2.9±0.65, 95%CI: 2.79,3.01. Seventy-three (53%) of the foetuses were males. The majority 51(37.2%) of the foetuses were admitted into the special care baby unit (SCBU) for special care. Other observed perinatal complications were prematurity, low birth weight, birth asphyxia and stillbirth accounting for 35.8%, 22.6%, 14.6% and 12.4% of cases respectively.
Conclusion: The commonest maternal and perinatal complications of placenta praevia at the RSUTH were blood transfusion and admission into SCBU respectively. Prompt diagnosis, efficient blood transfusion services and adequate management will improve foeto-maternal outcomes.

Keywords: Placenta praevia; foeto-maternal outcomes; perinatal; haemorrhage; RSU.

1. INTRODUCTION

Placenta praevia is one of the leading causes of antepartum haemorrhage (APH) and with life-threatening foetal-maternal and perinatal outcomes [1-3]. Placenta praevia refers to the partial or total implantation of the placenta in the lower uterine segment [4]. Different types of placentae praevia have been described in the literature (Types 1-4) [4]. In Type 1 (also known as marginal placenta praevia), the placenta encroaches on the lower uterine segment but does not get to the internal os; in type 2 (lateral placenta praevia), the placenta reaches the internal cervical os but does not cover it. Type 2 is further subclassified into 2a (anterior) and 2b (posterior). In type 3- the placenta covers the internal cervical os but not on full cervical dilatation; in type 4- the placenta is symmetrically implanted on the internal os even at full cervical dilatation. Types 3 and 4 are also known as central placenta praevia. Placenta praevia can also be classified into minor degrees (types 1 and 2a) and major degrees (types 2b,3 and 4) [4,5]. Patients often present with sudden unprovoked painless vaginal bleeding or previous vaginal bleeds (the first referred to as a warning bleed) in the third trimester [4]. The amount of haemorrhage may range from light to heavy [6]. Although the bleeding is painless, some women with placenta praevia may have pain with bleeding if they are in labour [4,6].

A previous study on APH in RSUTH revealed that placenta previa was the most common cause of antepartum haemorrhage and was significantly associated with the history of previous caesarean section [7]. Study on placenta praevia is scarce in our setting. Also, maternal and perinatal outcomes of pregnancies complicated by placenta praevia have not been studied in RSUTH. Thus, this study focuses on assessing the maternal and perinatal outcomes of placenta praevia at the RSUTH.

2. MATERIALS AND METHODS

The study was conducted at the Rivers State University Teaching Hospital (RSUTH), Port Harcourt, Rivers State, Nigeria. RSUTH is one of the tertiary health facilities in Rivers State and is located at the heart of Port Harcourt the capital of Rivers State. The Hospital receives referrals from within and neighbouring states [8]. The Hospital has on average 1500 deliveries annually and a caesarean section rate of 41.4% [9].

This was a cross-sectional study of all recorded cases of placenta praevia managed at the RSUTH, from 1st January 2016 to 31st December 2021. All cases of placenta praevia were collated from the labour ward, post-natal and theatre records. The total number of deliveries during the review period was obtained from the labour ward and theatre records/registers. A study proforma was designed and used for the collection of data on sociodemographic/obstetric factors, risk factors, type of placenta previa, nature of the surgery, foeto-maternal and perinatal outcomes. Placenta praevia was defined as a placenta that is partially or wholly implanted in the lower uterine segment after the period of foetal viability (which in our environment is 28 weeks). Diagnosis of placenta praevia was made both clinically and radiologically.

Data collected were entered into Microsoft word Excel office 2019 and transferred to IBM, Statistical Product and Service Solutions (SPSS) previously known as Statistical Package for the Social Sciences version 25.0, Armonk, NY, for analysis. Categorical variables were summarized in frequencies and percentages while continuous variables were summarized

using mean and standard deviations with 95% confidence intervals around the point estimates.

3. RESULTS

Over the period of review, there were fourteen thousand, one hundred and ninety -five (14,195) deliveries, and 137 cases of placenta praevia.

Table 1 shows the sociodemographic/ obstetric characteristics of the study participants. The mean ± SD age and gestational age of the participants at delivery was 32.50±4.94 years (95%CI 31.67, 33.34) and 36.72 ±2.25 weeks (95% CI 36.34,37.10) respectively.The modal age group was 35-39 years (Table 1). Majority 47.4% (n=65) were multiparas, 84.7% (n=116)

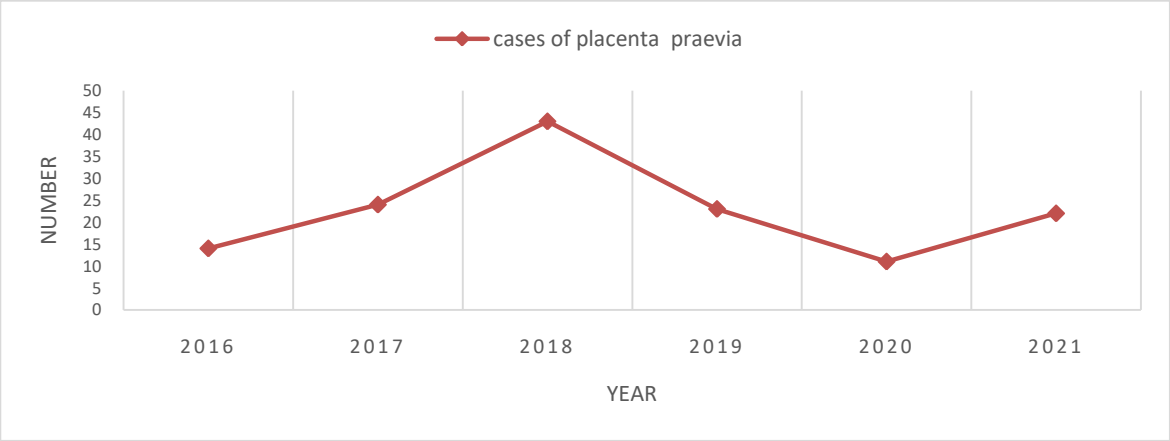

Fig. 1. The pattern of occurrence of placenta praevia at the RSUTH
Source of data: Wekere et al., [10]

Table 1. Sociodemographic / Obstetric factors of study participants

Variables	Number n=137	Percentage
Age (Years)		
20-24	10	7.3
25-29	32	23.4
30-34	38	27.7
35-39	49	35.8
40-44	8	5.8
Mean age 32.50	#SD 4.94	+95%CI: 31.67, 33.34
Mean *GA 36.72	SD2.25	95%CI: 36.34,37.10
Parity		
0(Nullipara)	25	18.2
1(Primipara)	44	32.1
2-4(Multipara)	65	47.4
≥5(Grand multipara)	3	1.2
Educational Status		
Primary	34	24.8
Secondary	47	34.3
Tertiary	56	40.9
Religion		
Christianity	130	94.9
Islam	7	5.1
Type of surgery		
Emergency	68	49.6
Elective	69	50.4
Booking Status		
Booked	116	84.7
Unbooked	21	15.3

*Source: Wekere et al., [10] *Gestational age, # Standard deviation + 95% Confidence Interval*

Table 2. Maternal complications/outcomes

Complications	Number (n=137)	Percentage
Postpartum haemorrhage (PPH)		
Yes	34	24.8
No	103	75.2
Preterm delivery		
Yes	49	35.8
No	88	64.2
Blood transfusion		
Yes	128	93.4
No	9	6.6
Caesarean hysterectomy		
Yes	3	2.2
No	134	97.8

were booked, 94.9% (n=130) Christians and had tertiary education 40.9% (n=56).

The majority 128 (93.4%) of the parturient had a blood transfusion (Table 2). The most common complication was blood transfusion 93.4%, followed by preterm delivery 35.8%, and postpartum haemorrhage (24.8%). More than half of the foetuses (53.9%) were males (Fig. 2).

The majority 51(37.2%) were admitted into the special care baby unit (SCBU) for special care. Other observed foetal complications were prematurity, low birth weight, birth asphyxia and stillbirth accounting for 35.8%, 22.6%,14.6% and 12.4% of cases respectively (Table 3). Although the majority 100 (73%) of the foetus had normal birth weight, 31 (22.6%) and 1(0.7%) had low birth weight and extremely low birth weight respectively (Table 4).

4. DISCUSSION

There were one hundred and thirty- seven cases of placenta praevia and 14,195 deliveries recorded over the review period. The sociodemographic / obstetric features and prevalence of placenta praevia in RSUTH have been reported [10]. In the present study, we assessed the maternal and perinatal outcomes of pregnancies complicated by placenta praevia in RSUTH over six years.

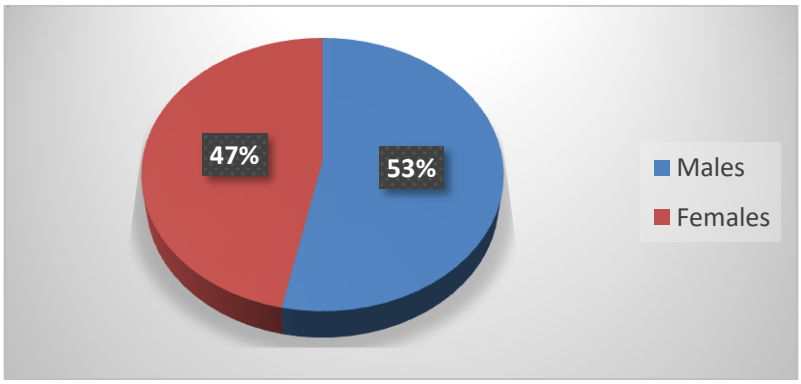

Fig. 2. Foetal sex distribution

Table 3. Foetal outcomes/complications

Variable	Number (n=168) *	Percentage
Prematurity	49	29.2
Still birth	17	10.1
Birth asphyxia	20	11.9
Admission into SCBU#	51	30.4
Low birth weight (1.5-2.4kg)	31	18.4

**Multiple complications #Special Care Baby Unit*

Table 4. Categories of birth weights of the foetus of mothers with placenta praevia

Variable	Number (n=137)	Percentage
Extreme low birth weight (<1kg)	1	0.7
Very low birth weight (1- 1.4kg)	0	0
Low birth weight (1.5-2.4kg)	31	22.6
Normal birth weight (2.5-4kg)	100	73.0
Macrosomia (>4kg)	5	3.7

The adverse maternal outcomes observed were the need for blood transfusion, postpartum haemorrhage, and preterm delivery. The need for blood transfusion was the commonest maternal complication accounting for 93.4%. This finding is similar to those of previous studies [7,11] but higher than 65% [12] reported by Anand et al., in India and 61.6% [13] reported by Olugbenga et al in Nigeria. Overall, there is a high requirement for blood transfusion in cases of placenta praevia. Additionally, massive blood loss from placenta praevia antepartum or intrapartum often necessitates immediate replacement for the improved foeto-maternal outcome. Although blood replacement should be based on estimated blood loss, vital signs and the clinical scenario, [14] a minimum of 4 units of blood is usually recommended to be made available when a woman presents with antepartum haemorrhage secondary to placenta praevia [4,14]. Repeated bleeding results in anaemia in women with placenta praevia. As such, pregnancies complicated by placenta praevia are better managed in centres with effective and efficient blood bank /transfusion services in addition to other specialist care. The availability of effective blood bank and transfusion services in our centre was helpful in the management of recorded cases of placenta praevia throughout the review.

Preterm delivery (delivery before 37 completed weeks) was the second most common complication or adverse outcome observed in the study. This occurred in 36% of cases of placenta praevia, following antepartum haemorrhage that necessitated immediate delivery to save the lives of the mother and foetus(es). This finding is in keeping with the findings of previous studies [4,15-17]. It is not uncommon to find cases of preterm deliveries among pregnancies complicated by placenta praevia since conservative management is terminated irrespective of the gestational age when the patient goes into labour or presents with profuse bleeding. A study conducted in Australia revealed that pregnancy complicated by placenta praevia was associated with over 50% of preterm births [16].

Although 34 (24.8%) of the parturient had postpartum haemorrhage, the majority did not. An increased number of booked patients in the study population could have accounted for this finding as they had their pregnancies supervised by specialists and their delivery planned [elective (repeat) caesarean section]. As such, they were optimized for the surgery and measures put in place to prevent postpartum haemorrhage in the parturient.

Three (2.2%) of the parturient had a caesarean hysterectomy due to massive blood loss from the morbidly adherent placenta, in particular percreta. This finding is similar to that of Anand et al., in India [12] and lower than 8.8% reported by Trivedi et al., in Ranchi [18]. In the present study, those that had caesarean hysterectomy were unbooked cases that were referred from peripheral health facilities for emergency caesarean section. However, there was no case of maternal death from placenta previa over the review period unlike the findings of previous studies [11,19,20]

Male sex preponderance was observed in this study, such that more than half of the foetuses were males. This finding is consistent with the findings of previous studies [21-26] but contrary to the findings of Parazzini et al., [27] and Tuzovic et al. [17]. Although evidence from different analyses identified an association of male sex with placenta praevia, the pathogenesis is yet to be fully known. The mean ± SD foetal birth weight was 2.9 ±0.65. This value is within the normal birth weight range in our setting. The most common foetal adverse outcome was admission into the special care baby unit or neonatal intensive care unit, followed by low birth weight, birth asphyxia and stillbirth. This is consistent with the findings of previous studies [2,15,28-30]. The stillbirth rate was 12.4%. Our finding is higher than the stillbirth rate of 4.5% reported in a previous study conducted in India [12]. The number of unbooked cases referred to our centre for management and the duration of review in the present study could have accounted for the observed stillbirth rate.

5. CONCLUSION

The commonest maternal and foetal complications of placenta praevia at the RSUTH were blood transfusion and admission into SCBU respectively. There was a male sex preponderance among foetuses of parturient that presented with placenta praevia. These findings will be helpful to clinicians in the management of cases as prompt diagnosis, efficient blood transfusion services and adequate management will improve maternal and perinatal outcomes.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical clearance for the study was obtained from the Hospital.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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