
PLACENTA PRAEVIA: INCIDENCE, RISK FACTORS, MATERNAL AND FETAL OUTCOMES IN A NIGERIAN TEACHING HOSPITAL

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ABSTRACT

Background: *Placenta praevia is a major cause of antepartum haemorrhage and is potentially life threatening to both the mother and the fetus. This study sought to determine the magnitude of the condition, its risk factors, maternal and fetal outcomes in a tertiary health centre in Jos, Nigeria.*

Materials and Methods: *A prospective cross-sectional study conducted in all women diagnosed with placenta praevia that spanned over a three and half-year periods (January 2006-June 2009) in Jos University Teaching Hospital, Jos. The patients were followed up until discharged from the hospital. Relevant information was obtained from each patient using a pre-designed study case report form. Statistical analysis was performed using simple percentages.*

Results: *During the study period, there were 10,895 deliveries and 135 cases of placenta praevia, thus an incidence of 1.24% or 1 in 81 deliveries. The average age of the patients was 30.2 years and majority of them were multi-parous (63.7%). The identified risk factors included previous caesarean section, grand-multiparity, previous uterine evacuation of retained products of conception, multiple pregnancy and history of placenta praevia. Maternal complications included post-partum anaemia, postpartum haemorrhage & operative site infection. There were two maternal deaths (1.48%) and the perinatal mortality rate was 18.7%.*

Conclusion: *The incidence of Placenta praevia was relatively high and associated with high maternal and perinatal complications. Screening ultrasonography in women with history of multiple caesarean sections in the third trimester and timely delivery may help to reduce the maternal and perinatal morbidity and mortality associated with placenta praevia.*

Key words: *Placenta Praevia, risk factors, maternal and perinatal mortality*

Introduction

Abnormal implantation of the Placenta in the lower uterine segment is one obstetric complication that no improvement in the quality of preconception or antenatal care has been able to prevent as it may merely represent an accident of nature. Placenta praevia, a high risk pregnancy which complicates 0.4-0.6% of all deliveries^{1,2,3} is a common cause of antepartum haemorrhage (APH) and a significant cause of maternal and fetal morbidity and mortality^{4,5}.

The aetiology of placenta praevia is frequently unclear⁶. However, it is more commonly encountered in older multiparous women, those with previous history of placenta praevia,

endometrial trauma as in dilatation and curettage or evacuation of the uterus of retained products of conception, and previous uterine scar after caesarean section, myomectomy or metroplasty^{6,7,8,9}. The risk of occurrence of placenta praevia increases with increasing number of caesarean section^{3,10}.

Other predisposing factors are intra-uterine synechiae, uterine fibroids, multiple pregnancy and erythroblastosis, assisted conception, structural uterine anomaly, cocaine and cigarette smoking as a result of compensatory placental hypertrophy cause by carbon monoxide induced hypoxaemia^{1,5,6,11,12}.

Major complications of placenta praevia are related to haemorrhagic shock and prolonged hypotension

as a result of placenta separation and subsequent poor contraction and retraction of the less muscular lower uterine segment^{6,13} or morbid adherence of the placenta especially in scarred uteri^{6,14,15}. Maternal and fetal complications include postpartum haemorrhage, postpartum anaemia and caesarean hysterectomy, low birth weight, maternal and perinatal deaths^{11,16-18}.

Placenta praevia is a high risk pregnancy that requires specialist care in order to reduce the high maternal and fetal complications associated with it. The aim of the study was to determine the incidence, risk factors, and the materno-fetal outcomes in women with this high risk pregnancy in our clinical setting.

Materials and Methods

This prospective descriptive study was conducted over a three and half-year period between January 2006 and June 2009. All patients diagnosed as having placenta praevia clinically, ultrasonographically or incidentally discovered at caesarean section were recruited into the study and followed-up until discharged from the hospital. Placenta praevia was diagnosed on abdominal ultrasonography when the placenta was located in the lower uterine segment with the lower margin below the dome of a full urinary bladder. All placenta praevia diagnosed preterm were admitted and managed using MacAfee regime (expectant management) and intervention made only at term or when complication(s) arose. Immediate delivery was carried out in symptomatic cases threatening maternal or fetal lives or both irrespective of gestational age as well as those that present at term. Caesarean section was routinely carried out for all cases of placenta praevia in our setting and the diagnosis was further ascertained intra-operatively. Informed consent was obtained from each patient before inclusion in the study.

Data of each patient such as maternal age, parity, identified risk factor(s), mode of presentation/diagnosis, maternal and foetal outcomes were documented in a predesigned case report form and these were analysed using simple percentages.

Results:

During the period of study, of the 10,895 deliveries in the hospital, 135 patients were confirmed to have placenta praevia at surgery. The prevalence was 1.24% or 1 in 81 deliveries. The average age of the patients was 30.2 years and majority of them [92 (68.2%)] were of parity 1-4. Table 1 shows the age and parity distribution of the patients.

Sixty seven (49.7%) of the patients were booked in the study centre, 59 (43.7%) booked elsewhere while 9(6.7%) were unbooked. A hundred and one (74.8%) of the patients presented with painless vaginal bleeding. Thirty four (25.2%) were asymptomatic, out of which 20(14.8%) and 14(10.4%) cases were diagnosed incidentally during ultrasound scan and intra-operatively respectively for a different indication. Ten (71.4%) of the 14 cases discovered incidentally at surgery had previous history of ≥ 3 caesarean section. The average gestational age at diagnosis and delivery were 35.2 weeks and 36.1 weeks respectively. The average packed cell volume (PCV) at presentation was 28.9% and seventy (51.9%) of the patients had anaemia at presentation (PCV<30%). About forty six percent (45.9%) of the patients were managed expectantly (MacAfee regime) while 63.0% were delivered at term. The blood transfusion rate was 51.1% (69) and about 37.8% of the patients had 2-4 units of blood transfused.

Risk factors identified included previous history of caesarean section (40.7%), grand-multiparity (28.3%), previous history of uterine evacuation of retained products of conception (20.4%), multiple pregnancies (6.2%) and previous history of placenta praevia (4.2%). There was no identifiable risk factor in 50(37.0%) of the patients. Table 2 shows the method of diagnosis and identified risk factors in the patients.

About seventy eight percent (77.8%) of the patients had no postpartum complications, 11.9% had postpartum anaemia, 6.7% had postpartum haemorrhage necessitating caesarean hysterectomy in four (3.0%) of the patients, and 2.2% had wound sepsis. Three out of the four patients that had hysterectomy were those that had ≥ 3 caesarean sections discovered incidentally during caesarean delivery. There were two (1.48%) maternal deaths and 113 (81.3%) live births of which 73.4% had no complication while 7.9% had mild-moderate birth asphyxia. The perinatal mortality rate was 18.7%. Figs 1&2 show the maternal and fetal outcome respectively.

Table 1: Age and Parity distribution of the patients

Age Range	No. Of Patients	Percentage (%)
20 - 24	25	18.5
25 - 29	38	28.1
30 - 34	30	22.2
35 - 39	31	23.0
40 - 44	9	6.7
>55	2	1.5
Total	135	100.0
Parity		
0	10	7.4
1	39	28.9
2	23	17.1
3	12	8.9
4	18	13.3
>5	33	12.4
Total	135	100.0

Para 0 refers to primigravida at time of presentation

Table 2: Method of diagnosis and Identified risk factors

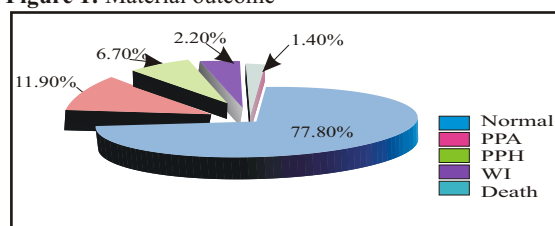
Diagnostic Method	No. of Patients	Percentage (%)
Clinical + Ultrasound	101	74.8
Ultrasound only	20	14.8
Intra-operative finding	14	10.4
Total	135	100.0
Predisposing factor		
Previous Caesarean Section	46	40.7
Grand multiparity	32	28.3
Previous Uterine evacuation	23	20.4
Multiple pregnancy	7	6.2
Previous history of placenta praevia	5	4.4
Total	113	100.0

*10 out of 14 cases discovered at surgery had previous history of ≥3 caesarean section

*some patients had more than one risk factor.

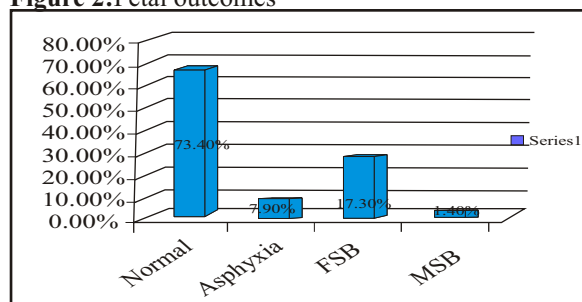
*50 patients had no identifiable risk factor.

Figure 1: Material outcome



PPA - Postpartum anaemia
 PPH- Postpartum haemorrhage
 WI - Wound infection

Figure 2:Fetal outcomes



FSB - Fresh still birth
 MSB - Macerated still birth

Discussion:

Placenta praevia, a leading cause of antepartum haemorrhage with associated increased maternal and perinatal morbidity and mortality often taxes the limit of even the best equipped obstetric unit especially with regard to caesarean section and blood transfusion. The incidence of 1.24% or 1 in 81 deliveries in this study is higher than figures of between 0.4 - 0.6% of deliveries reported from USA, Oman, Croatia and Edinburg^{1,2,3,19}. Though these were also hospital based studies, the difference could be attributed to different obstetric populations and the fact that this institution is a referral centre where high risk pregnancies are managed and this was elucidated by the fact that over 50% of the patients were not booked in this hospital.

However, the figure from this study is lower than 1.65% of deliveries reported from Ile-Ife and Nnewi^{4,17} and 2.6% from Lagos⁷. This can be attributed to differences in the diagnostic criteria and the fact that most of the studies were retrospective with their attendant's enormous limitations. An incidence of 1.2% of deliveries reported from Yaoundé, Cameroon¹⁶ is comparable to that of this study, though it may just be a coincidence as they are not of the same obstetric population.

The commonest mode of presentation was antepartum haemorrhage (74.8%) which is similar to other findings elsewhere^{2,16,17,19}. The incidence of placenta praevia increases in older multiparous women^{1,3,7,8}. This was not clearly defined in this study as over 69% of the patients were below 35 years of age. However, grand-multiparity was noted in a significant proportion (23.7%) of the patients which may suggest its association with placenta praevia as noted in other studies^{1,2,4}.

The fact that 37.0% of the patients had no identifiable risk factor suggest that the cause of placenta praevia is frequently unclear and the low site of implantation may just be an accident of nature. However, genital tuberculosis, sexually transmitted diseases and infestations which are common in the tropics could cause unrecognized intra-uterine adhesions which is a known risk factor for placenta praevia^{8,20}. Women with previous caesarean section are at higher risk of developing placenta praevia than those without prior caesarean section^{1,3,5,7,8,10,11,16-17}. This is the most identifiable risk factor in this study as it was noted in 40.7% of the patients. The incidental intra-operative discovery of placenta praevia in 71.4% of women with history

of 3 or more caesarean section agrees with the fact that the risk of developing placenta praevia increases with increasing number of caesarean section^{3,10}.

Previous reports^{1-3,5,7,8,11} have identified more frequent history of evacuation of the uterus of retained products of conception among women with placenta praevia. This was noted in 20.4% of the patients in this study. Other identified risk factors included multiple pregnancy and previous history of placenta praevia as noted elsewhere¹⁶. Placenta praevia is associated with adverse pregnancy outcomes such as postpartum haemorrhage, peripartum hysterectomy, blood transfusion, maternal sepsis, placenta accreta and increased perinatal mortality^{11,16,21}. It contributes significantly to the perinatal and maternal morbidity and mortality due to antepartum haemorrhage and prematurity. Over half (51.9%) of the patients were anaemic at presentation and 51.1% were transfused with blood. This emphasizes the need for effective blood banking services for the optimal management of pregnancies complicated by placenta praevia. About eight percent (7.9%) of the total live births had mild moderate birth asphyxia and the overall perinatal mortality rate was 18.7%. This is higher than figures of 7.64%, 10.8%, and 4.5% reported from Lagos, Yaoundé and Nnewi respectively^{7,16,17} but comparable to 17.7% reported from Ile-Ife¹⁴. These high figures from all the centres stress the fact that placenta praevia is a high risk pregnancy with associated grave complications.

Maternal morbidities noted in this study included postpartum anaemia, postpartum haemorrhage with four patients having caesarean hysterectomy, and wound infection. This findings agrees with other studies carried out elsewhere^{7,11,16,12}. Caesarean hysterectomies were due to morbidly adherent placenta which is a known complication in patient with placenta praevia^{21,22}. Maternal mortality in this study was 1.48%, though no maternal death were reported from other studies^{7,16}. Placenta praevia is common in our environment and is mostly a disease of previously scarred uterus especially in women with 3 or more previous caesarean section. Hence, such women should have a screening ultrasonography after 28 weeks of gestation to detect asymptomatic cases which may cause major management challenges when presented as an emergency. This will reduce the maternal and perinatal morbidity and mortality associated with these high risk pregnancies.

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