PLACENTA PRAEVIA: PREVALENCE AND RISK FACTORS AT AMINU KANO TEACHING HOSPITAL, KANO, NIGERIA.

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ABSTRACT

Background: In an attempt to reduce maternal mortality from obstetric haemorrhage worldwide, obstetricians now offer routine ultrasound scan for placental localization in the mid trimester more readily to pregnant women, especially those who have risk factor(s). Knowledge of the risk factors of placenta praevia in our hospital will be necessary.

Objective: To determine the prevalence and risk factors for placenta praevia at Aminu Kano Teaching Hospital, Kano, Nigeria.

Methods: This is a case control study of fifty-two women who were confirmed to have placenta praevia (cases), and were compared with the next four women who delivered after them without placenta praevia (control) from January 2007 to December 2008. The study variables of interest were prevalence, age, and parity of the patients, gestational age, and risk factors of placenta praevia. Chi–square test was used to determine significant association between categorical variables.

Results: The prevalence of placenta praevia was found to be 0.7%. Women in the 30-34 years age group (OR= 2.03, CI= 1.02-4.02, P= 0.042), Multiparae (OR= 2.81, CI= 1.42 -5.61, P= 0.002), early pregnancy bleeding (OR= 8.66, CI= 3.73 –20.33, P<0.001), previous uterine/caesarean section scar (OR= 4.21, CI= 1.97 – 9.02, P<0.001) and previous placenta praevia (OR= 4.32, CI= 1.03 – 18.11, P= 0.030) all conferred increased risk for placenta praevia.

Conclusion: Maternal age 30-34 years, multiparity, early pregnancy bleeding, previous uterine/caesarean section scar and previous placenta praevia were found to have significant association with placenta praevia in this study.

Key Words: Placenta praevia, Prevalence, Risk factors, Kano.

INTRODUCTION

Placenta praevia is a placenta that is partially or wholly in the lower uterine segment.[1-3] If it lies over the cervical os, it is considered a major praevia, if not, then minor praevia exists.[4,5] Placenta praevia is the commonest cause of obstetric haemorrhage, and is one of the most acute life threatening obstetric emergencies.[4-6] It is a grave and potentially life threatening condition, which taxes the limits of even the most developed obstetric unit[4]. It occurs in 0.5-2.6% of all pregnancies in Nigeria[1,2,7,8], and 0.2 – 0.4% in developed countries.[9-12]

The high prevalence of placenta praevia in Nigeria, has been attributed to the high prevalence of risk factors like uterine fibroids/previous myomectomy scars in pregnancy, multiple pregnancies, high parity, and previous caesarean section scars secondary to

cephalopelvic disproportion.[8,13,14] Previous caesarean section scar in pregnancy is becoming an important risk factor in developed countries, as a result of increasing caesarean section rate because of 'request caesareans' and fear of litigation.[10,15,16]

Obstetric haemorrhage is one of the leading causes of maternal mortality in Nigeria, where together with eclampsia and sepsis, it constitute the triad of maternal mortality.[17] In Kano in northern Nigeria, it is the second commonest cause of maternal mortality after eclampsia,[17] while studies from southern Nigeria found obstetric haemorrhage to be the leading cause of maternal mortality.[8] This has been attributed this to delay in presentation in the hospital (Phases I and II delay), delay in the hospital because essential obstetric care facilities are poorly developed (Phase III delay), and scarcity of donor's blood.[4]

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Delay in presentation in the hospital has been attributed to socio-cultural and religious barriers to attending antenatal clinic and hospital delivery.[17] Most of our rural public hospitals and health centres are not functional 24 hours of the day, coupled with poor road network and transportation systems to the cities, result in delay in getting appropriate care in labour, with the result that 70% of deliveries are conducted outside the hospitals by unskilled birth attendants.[4] Scarcity of donor's blood has been attributed to myths about blood donation, high prevalence of Human Immunodeficiency Virus Infection, inadequately equipped/manned blood banks which are plagued with frequent power failure.[4,17]

Early recognition and prompt management have been advocated in order to minimize complications.[4-6] The timing of the diagnosis of placenta praevia has undergone significant changes in the last decade with the advent of ultrasound scan.[6] Diagnosing a praevia is usually made when there is painless bleeding during the third trimester.[4,5] and it is unwise to do a vaginal examination until an ultrasound has ruled out a placenta praevia.[6,9] However, there is a 10% false positive diagnosis rate, usually because of the bladder being over full. There is also a 7% false negative rate, typically caused from missing the praevia that is located behind the baby's head.[5,6]

Although third trimester bleeding is the commonest presentation for placenta praevia,[4,7] most cases are now detected antenatally in developed countries prior to the onset of significant bleeding by ultrasound scan.[5,6] Despite the advancement made in the diagnosis of placenta praevia, it still remains an important obstetric cause of morbidity and mortality in developing countries like Nigeria[1], where routine ultrasound in pregnancy is not done for financial reasons or unavailability.[4] Knowledge of the risk factors will be essential, to sieve out the patients who should have mandatory scanning in early pregnancy.

Several studies have examined risk factors for the development of placenta praevia elsewhere in Nigeria,[1,7,8] but no study has been conducted on this subject in our hospital. This informed why this study was designed, to determine the risk factors of placenta praevia at Aminu Kano Teaching Hospital, Kano Nigeria, so that recommendations can be made to develop strategies that will reduce morbidity and mortality from placenta praevia in our community.

MATERIALS AND METHODS
This is a case control study of patients with placenta praevia who delivered at/or after 34 weeks of gestation at Aminu Kano Teaching Hospital, Kano, Nigeria, from January 2007 to December 2008.
Aminu Kano Teaching Hospital is a tertiary health care delivery centre that is located in Kano City, the centre of commerce in Northern Nigeria and the capital of predominantly Islamic Kano State. Kano state has land area of 20,760 square Kilometers, and it is the most populous state in Nigeria, with a population of about ten million people.[18] The health facility has 500 beds, with 22 beds in the labour ward and about 4000 deliveries per year. It receives patients' referral from hospitals in the state, and neighbouring states of Jigawa and Katsina.

In Aminu Kano Teaching Hospital, the policy is that selective ultrasound scanning, in which only women with complications like vaginal bleeding in pregnancy are sent for ultrasound scanning.
Fifty-two women, who were confirmed to have placenta praevia clinically, by ultrasound scan and at caesarean section and delivered at/or after 34 weeks gestation (cases), were compared with the next four women who delivered after them at/or after 34 weeks gestation, without placenta praevia (controls). The controls were women who had fundal placenta on ultrasound scanning from mid trimester of pregnancy. The study variables of interest were prevalence, maternal age and parity, gestational age at delivery and risk factors of placenta praevia viz, previous miscarriage(s), previous uterine scar/caesarean section, early pregnancy bleeding, previous placenta praevia and history of retained placenta .

The case files of the patients were used to obtain the information, which was recorded in tabular form. Statistical analysis was done with chi-square test using a commercial statistical package (SPSS/PC version 11.0, SPSS Inc., Chicago IL. USA.). A P-value of less than 0.05 was considered significant.

RESULTS
During the study period, there were a total of 7,693 deliveries, out of which 54 were confirmed to have placenta praevia, giving a prevalence of 0.7% of the total deliveries for placenta praevia. Fifty-two case notes were retrieved from the Medical Records Department, giving a retrieval rate of 96.3%. Among them 55.8% were unbooked and they were all delivered by caesarean section.

Among the cases, the age range was from 18-45 years, with a mean age of 30.0 ± 5 years, and modal frequency of 30-34years, while among the controls,

Table 1: Age and Parity distribution of the cases and controls.

Variable	Cases n= 52 (%)	Control n = 208 (%)	OR	CI	p- value
Age (years)					
≤ 19	2 (3.9)	28 (13.5)	0.26	0.04-1.17	0.089
20 - 24	3 (5.8)	37 (22.6)	0.28	0.07-1.01	0.053
25 - 29	14 (26.9)	55 (26.4)	1.02	0.49-2.14	0.916
30 - 34	21 (40.4)	52 (25)	2.03	1.02-4.02	0.042*
35 - 39	8 (15.4)	18 (8.7)	1.92	0.71-5.06	0.235
40 - 45	4 (7.7)	8 (3.9)	2.08	0.50-8.06	0.266
Parity					
0	3 (5.8)	37 (31.3)	0.28	0.07-1.01	0.053
1 - 4	35 (55.8)	88 (44.7)	2.81	1.42 -5.61	0.002*
≤ 5	14 (38.4)	73 (49.0)	0.68	0.33-1.40	0.341

* Significant for placenta praevia

the age range was from 15- 44 years, with a mean age of 28.0 ± 4years, and modal frequency of 25-29years. The parity range among the cases was from 0-10, with a mean parity of 4.0 ± 2.0, and a modal parity of 1-4, while among the controls the parity range was from 0-12, with a mean parity of 3.0 ±1.0, and a modal parity of 1-4. Patients with placenta praevia were delivered between 34-38 weeks of gestational age, with a mean gestational age of 36 ± 0.2 weeks, while those without placenta praevia were delivered between 38-41 weeks gestational age, with a mean gestational age of 39 ± 0.6 weeks.

Among the women in the 30-34 years age group, the odd of having placenta praevia was 2 times higher among the cases than the controls (OR= 2.03, CI= 1.02 - 4.02, P= 0.042), while among multiparae it was about 3 times higher among the cases compared to the controls (OR= 2.81, CI= 1.42 - 5.61, P= 0.002). Other age and parity groups did not show significant association with placenta praevia. Table 1.

Early pregnancy bleeding (OR= 8.66, CI= 3.73 –20.33, P<0.001), previous uterine scar/caesarean section (OR= 4.21, CI= 1.97 – 9.02, P<0.001) and previous placenta praevia (OR= 4.32, CI= 1.03 – 18.11, P= 0.030) were found to have significant association with placenta praevia. History of miscarriage (OR= 0.43, CI= 0.10 –157, P= 0.257), history of retained placenta (OR= 0.42, CI= 0.07 – 1.99, P= 0.383), multiple pregnancies (OR= 0.60, CI= 0.09 – 2.93, P= 0.742), and no risk factor (OR= 0.02, CI= 0.00 - 0.13, P<0.001) were not found to have significant association with placenta praevia. Table 2.

DISCUSSION

In this study, the incidence of placenta praevia was 0.7%, which is within the range of 0.5-2.6% that was reported in other studies from Nigeria.[1,2,7,8] It is however higher than 0.4% from United States of America,[9] 0.31% from Poland,[10] 0.31% from Zurich,[11] and 0.2% from Canada,[12] which may be due to the high prevalence of risk factors of placenta praevia like, uterine fibroids/myomectomy scar in pregnancy, multiple pregnancy, high parity in developing countries like Nigeria.[4] The prevalence of previous caesarean section scars in pregnancy in developed countries, is becoming similar to that of that of developing countries, because of increasing caesarean section rate from 'request caesareans' and fear of litigation in developed countries.[15]

The mean gestational age at delivery of 36 ± 0.2 weeks and a range of 34-38 weeks gestation is similar to the findings of other authors.[1,13] This calls for the management of patients with placenta praevia in health facilities

Table 2: Risk factors of placenta praevia among the cases and controls.

Risk Factors	Cases n=52 (%)	Controls n=208 (%)	OR	CI	p- value
Early pregnancy bleeding	20(38)	14(17)	8.66	3.73 -20.33	<0.001*
Previous miscarriage(s)	3(17)	26(10)	0.43	0.10 -157	0.257
Previous uterine scar	19(37)	25(18)	4.21	1.97 - 9.02	<0.001*
History of retained placenta	2(15)	18(7)	0.42	0.07 - 1.99	0.383
Previous placenta praevia	5(10)	5(2)	4.32	1.03 - 18.11	0.030*
Multiple gestation	2(8)	13(5)	0.60	0.09 - 2.93	0.742
No risk factor found	1(2)	107(41)	0.02	0.00 - 0.13	<0.001

*Significant for placenta praevia

because of the higher neonatal intensive care admission rate, and poor neonatal outcome among babies that are delivered before 36 weeks gestation.[17]

Older maternal age and multigravidity, which were found to be significant risk factors for placenta praevia in this study, agrees with the finding of other studies.[3,7] This has been attributed to higher frequency of the predisposing factors among maternity women with increasing age and parity,[3] like previous caesarean section, multiple pregnancy, previous myomectomy, and uterine fibroids in pregnancy.[14-16]

Previous uterine scar as a significant risk factor for placenta praevia in this study, agrees with the findings from Ile-Ife[7] in South Western Nigeria,[1] and Nnewi in South Eastern Nigeria.[14] The significant association between previous uterine scar and placenta praevia has been attributed to the predilection of the placenta for the site of a previous uterine scar.[15] Yang et al[16] found that Caesarean section for first time live birth is associated with a 47% increased risk for placenta praevia in second pregnancy with a singleton.[16] Getahun et al[9] found that there is a dose-response pattern in the risk of placenta praevia, with increasing number of caesarean deliveries, with a two fold increase in the risk of placenta praevia following caesarean delivery in the first two births, compared with first two vaginal deliveries. These may explain the association of previous uterine scar with placenta praevia in this study from northwestern Nigeria, because early girl marriage and teenage pregnancies, which are high risk for primary caesarean section because of immature pelvis[19-22] are common in our community.[17]

Early pregnancy bleeding, which is generally recognized as a warning sign of placenta praevia,[3,4] was found to have significant association with placenta praevia in this study. This agrees with the findings of other studies,[1] and may be because it is commonly due to low implantation of the placenta.[23] This can be appreciated in the study from Maiduguri,[2] where 45% of pregnancies with low lying placenta had threatened abortion, while 15% had antepartum haemorrhage. Women with early pregnancy bleeding should be referred to centres where ultrasound scanning is available for placental localization, while those with placenta praevia at gestational age of 30 weeks and above should be monitored in specialized centers, where facilities for blood transfusion, caesarean section and neonatal care are available, because studies have shown that women with partial or total placenta praevia at 30 and 34 weeks gestation, are likely to persist to term in 60% and 75% of cases

respectively,[2] which implies that the chance of placental migration after 30-34 weeks gestation is low. Previous history of placenta praevia was found to have significant association with placenta praevia in this study, which agrees with the findings from Ile-Ife, Nigeria.[7] This may probably be because the aetiology of placenta praevia is unknown, and the predisposing factor(s) if untreated may still be present.

Multiple pregnancy was not found to be a significant risk factor of placenta praevia in this study, which agrees with the findings from Jos,[13] in North Central Nigeria, a community with similar low prevalence of multiple pregnancy like ours.[23] However, this does not agree with studies from south western Nigeria,[8] which has the highest prevalence of multiple pregnancy worldwide.[16]

History of miscarriage(s) and retained placenta were not found to be associated with placenta praevia in this study, which agrees with studies from developed countries.[10] However it does not agree with studies from Ile-Ife[7] and Jos[13] where women delay marriage. This may probably be because early girl marriage which is common in our community in north western Nigeria,[17] makes our women not to be exposed to premarital unwanted pregnancies and induced abortions, which may cause denudation of the endometrium from trauma and/or sepsis, and predispose the women to placenta praevia and retained placenta.[24]

CONCLUSION AND RECOMMENDATIONS

Placenta praevia is a fairly common occurrence in our obstetric practice in Aminu Kano Teaching Hospital. In this study maternal age 30-34 years, multiparity, early pregnancy bleeding, previous uterine scar/caesarean section, and previous placenta praevia were found to have significant association with placenta praevia.

Patients with risk factors should have early ultrasound scanning for placental localization at the beginning of the mid trimester, and referral of cases that persist as placenta praevia at the beginning of the third trimester to specialist hospitals, where facilities for caesarean section, blood transfusion and neonatal care is available 24 hours of the day, in order to optimize feto-maternal outcome.

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