

## The Natural History of Placenta Praevia in a Nigerian Population

Calvin Chama, Ishaya Wanonyi and Joshua Usman

Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, Maiduguri

### Abstract

**Context:** Placenta praevia is a major cause of antepartum haemorrhage. The introduction of real time ultrasound scan has made early detection of placenta praevia possible. However, the determination of which placenta will consistently remain praevia throughout pregnancy is uncertain.

**Objective:** To determine the natural history of placenta praevia detected by transabdominal ultrasound scan at 12-14 weeks gestation till delivery.

**Study Design:** A prospective longitudinal study of antenatal women with placenta praevia detected by transabdominal ultrasound scan at 12-14 weeks gestation at the antenatal clinic of the University of Maiduguri Teaching Hospital. The subjects were followed up by serial ultrasound scan until delivery.

**Result:** Out of 895 consecutive pregnant women scanned in early pregnancy, 14.6% had placenta praevia at 12-14 weeks gestation. Longitudinal follow-up of those with placenta praevia showed that 85% had normally situated placenta at term. Among those with partial or total placenta praevia at 30 weeks gestation, 60% and 75% respectively persisted as major placenta praevia at term. A total of 45% of those with placenta praevia at recruitment had threatened abortion while 15.7% of them had antepartum haemorrhage. Caesarean section rate was as high as 25% among the study population when compared with 8.4% among the general population ( $p < 0.005$ ).

**Conclusion:** Placenta praevia in the first trimester becomes normally situated at term in about 85% of cases. However, partial and total placenta praevia at 30 weeks gestation are likely to persist to term in 60% and 75% of cases respectively; these categories of patients should be closely followed-up to term.

**Key Words:** Placenta Praevia, Ultrasonography, Antepartum Haemorrhage  
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### Introduction

Placenta praevia occurring in 0.1-0.5% of all pregnancies<sup>1,2</sup> is associated with significant haemorrhage to both mother and fetus<sup>3</sup>. The timing of the diagnosis of placenta praevia has undergone significant change in the last decade. Whereas third trimester bleeding was a common presentation for placenta praevia, most cases are now detected antenatally prior to the onset of significant bleeding. This has been attributed to the common practice of early ultrasound scan for the detection of fetal abnormalities and other pregnancy complications<sup>4</sup>. However most cases of placenta praevia detected in the second trimester will resolve by term<sup>5</sup>. The purpose of this study is to follow the antenatal events in women with placenta praevia detected at 12-14 weeks gestation until delivery.

### Materials and Methods

This is a prospective study of pregnant women who were requested to confirm their pregnancies in the first trimester by ultrasound scan at the antenatal clinic of the University of Maiduguri Teaching Hospital (UMTH), Maiduguri, Nigeria. The criteria for recruitment into the study were:

- (a) The woman had first trimester ultrasound scan
- (b) The woman was certain of her last menstrual period (LMP) and the gestational age by ultrasound scan was compatible to her gestational age by within 7 days.
- (c) The woman was carrying a singleton pregnancy.

- (d) The placenta was found to be low lying.

Women who were recruited for the study were rescanned at 12-14 weeks gestation when the placenta would have formed<sup>6</sup> and then at 20, 30 and 37 week gestation for placental localization. The clients were rescanned with full bladder using scanner 250, Pie Medical Ltd, Netherlands, with a 3.5 MHZ curvilinear transducer. For the purpose of this study, a low-lying placenta (or placenta praevia) is a placenta with its lower margin lying below the fundus of a full bladder during transabdominal ultrasound examination. Those found to have placenta praevia were classified as follows:

- (a) Lateral: The lower margin of the placenta was lying below the fundus of the bladder but does not reach the internal os.
- (b) Marginal: the lower margin of the placenta reaches the internal os but does not overlap.
- (c) Partial: the placental edge partially covers the internal os
- (d) Total: the placenta totally covers the internal os.

All the women were monitored for vaginal bleeding and pregnancy outcome. Vaginal bleeding in pregnancy before 24 completed weeks of gestation was considered

**Correspondence:** Dr. Calvin Chama, Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, P.M.B. 1414, Maiduguri Borno State

to be threatened abortion. Antepartum haemorrhage (APH) was regarded as vaginal bleeding after 24 weeks of gestation and before delivery.

**Results**

There were a total of 895 consecutive trans abdominal ultrasound scanning for confirmation of pregnancy in the first trimester at the antenatal clinical (ANC) of UMTH, Maiduguri during the period spanning June 2001 to May 2002, and out of these 131 were diagnosed to have placenta praevia at 12-14 weeks gestation based on the criteria for recruitment This gave an incidence rate of 14.6% of placenta praevia at 12-14 weeks gestation. Four of the clients defaulted serial scanning for placental localization leaving 127 women who formed the subjects of this study. Seventy five (59.1%) of them had posterior implantation and the remaining 52(40.9%) were anterior implantation.

Table 1. shows the distribution of the types of placenta praevia, with the marginal type accounting for 59.8% of cases. A total of 57 (44.9%) of cases had threatened abortion but only 20 (15.7%) eventually had APH.

**Table 1: Distributions of the types of placenta praevia and antenatal complications**

Types of placenta Praevia	No	No had Threatened Abortion	No had APH
Lateral	13	3 (23.1%)	1 (7.6%)
Marginal	76	25 (32.9%)	9 (11.8%)
Partial	13	8 (61.5%)	3 (23.1%)
Total	25	21 (84.0%)	7 (28.0%)
<b>TOTAL</b>	<b>127</b>	<b>57 (44.9%)</b>	<b>20 (15.7%)</b>

Table 2 shows the parity distribution of placenta praevia With primigravidas and primiparas on top of the list at diagnosis. However the proportion of those who had threatened abortion and APH as the pregnancy advanced increased with parity as well as age (Table 3). This trend was not however observed among grandmultiparas perhaps because they were too few in number. A total of 20 women had evacuation for incomplete abortion.

In Table 4, we see the trend of events as the gestational age progressed. This is further illustrated in figure 2. All those with lateral placenta praevia at 12-14 weeks gestation had become normal by 30 weeks gestation. Among those with marginal placenta praevia 9.2% persisted to term. About 23% and 36% of those with partial and total placenta praevia respectively persisted to term. Overall, a total of 19 (14.9%) of cases of placenta praevia in the first trimester persisted at term. There were 33 (26%) caesarean deliveries but only 12(9.4%) were due to placenta praevia. The remaining

74 (58%) women who had placenta praevia at 12-14 weeks gestation. **Table 2: Parity distribution of placenta praevia and antenatal complications**

Parity	No	Had threatened Abortion (%)	Had APH (%)
0	33	13(39.4)	2 (6.1)
1	33	12 (36.4)	3 (9.1)
2	26	12 (36.1)	5 (19.2)
3	21	11(52.4)	5(23.8)
4	8	6 (75.0)	3 (37.5)
>5	6	3 (50.0)	2 (33.3)
<b>TOTAL</b>	<b>127</b>	<b>57</b>	<b>20</b>

Weeks eventually had vaginal delivery.

**Table 3: Age distribution of placenta praevia and antenatal complications**

Age (Years)	No.	No. Had threatened Abortion (%)	Had APH (%)
<15	9	3 ( 33.3%)	0 (0.0%)
15 -19	21	8 (38.1%)	2 (9.5%)
20 -24	36	16 (44.4%)	4 (11.1%)
25 -29	34	15 (47.0%)	5 (14.7%)
30 -34	14	7 (50%)	4 (28.6%)
>35	13	7(53.8%)	5 (38.5%)
<b>TOTAL</b>	<b>127</b>	<b>57</b>	<b>20</b>

**Table 4: Types of placenta praevia at 12-14 weeks gestation and their antenatal progression.**

Types	12 - 14 weeks	20 weeks	30 week	37 weeks (%)
Lateral	13	3	0	0 (0.0)
Marginal	76	53	27	7 (9.2)
Partial	13	9	5	3 (23.0)
Total	25	21	12	9 (36.0)
<b>TOTAL</b>	<b>127</b>	<b>86</b>	<b>42</b>	<b>19 (14.96)</b>

**Discussion**

Placenta praevia is defined as a placenta which is partially or totally situated in the lower uterine segment <sup>4,7</sup>. Its incidence has been variously reported to range

from 0.1-0.5%<sup>1,3</sup>. This low incidence is due to the fact that most cases were reported in the third trimester following antepartum haemorrhage.

With the introduction of routine ultrasound scan in the second trimester of pregnancy, more cases of placenta praevia are now detected even before they ever become symptomatic<sup>6,8</sup>. Rizos et al and Gillieson et al in 1979 and 1982 respectively reported that 5-6% of placentae were found to be low-lying in the second trimester<sup>5,9</sup>. In our study, 14.6% of pregnant women scanned at 12-14 weeks gestation showed a low-lying placenta.

Previous studies have shown that about 90% of cases of asymptomatic placenta praevia in the second trimester remained asymptomatic and became normally situated subsequently<sup>5,10</sup>. The mechanism by which the placenta migrates away from the cervix and lower uterine segment with advancing gestational age is not fully understood. Various theories have been proposed suggesting either changes in the architecture of the lower uterine segment with advancing gestational age or, dynamic placentation in which microscopic placental separation and reattachment occur throughout the second and third trimesters<sup>11,12</sup>. Our study shows that 85% of placenta praevia at 12-14 weeks gestation become normally situated at term. Over 44% of them had threatened abortion while 15.7% had APH subsequently. Threatened abortion is said to occur in 15-20% of all pregnancies<sup>13</sup> while APH has been reported in 3.9-7.9% of pregnancies<sup>14,15</sup>. Patients with placenta praevia at 12-14 weeks gestation are therefore at increased risk of both threatened abortion and APH. All cases of lateral placenta praevia at 12-14 weeks gestation became normally situated by 30 weeks gestation in our study. With increasing proximity to the internal os at recruitment, greater proportion remained low-lying at term with 36% of those totally covering the internal os at recruitment remaining so at term. The proportion of women who had threatened abortion and/or APH increased with parity and age.

For women with total or partial placenta praevia at 30 weeks gestation, 60% and 75% respectively remained so at term. However, only 23% and 28% respectively had APH. Earlier studies had shown that about 18% of pregnancies scanned at 24 weeks gestation had placenta praevia; this dropped to 3% at term<sup>11,16</sup>.

Caesarean delivery rate in this study population was 26%. However, only 14% were due to APH. Both figures were higher than the caesarean section rate of 8.4% in the general population in the same center<sup>17</sup>. Even those who did not have APH in this group also had high caesarean section rate of 12% because vaginal delivery could not be attempted in the presence of asymptomatic major placenta praevia.

In view of the fact that even some cases of major placenta praevia did not give "warning bleeds" we recommend that all pregnant women should have at least one ultrasound scan in second or third trimester for placental localization. This will help identify those with major placenta praevia for close follow-up. Although a retrospective review had earlier shown that the outcome of pregnancy is not different in women who bleed and

those who do not bleed with placenta praevia<sup>3</sup> this can not be so in developing countries where emergency interventions may be delayed due to socio-economic reasons and poorly equipped hospitals. The physician will be better armed if he had prior knowledge that the patient has major placenta praevia.

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