



A Descriptive Study To Correlate Occurrence of Postpartum Haemorrhage With Second Trimester Placental Location in Women Attending Obstetrics & Gynaecology Department At Sms Medical College, Jaipur

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ABSTRACT

Objective : This study is to assess whether low placentation in the second trimester is an independent risk factor for postpartum hemorrhage.

Methods : In this hospital based prospective study, singleton pregnant women with gestational age of 18 weeks' and 24 weeks 6 days' with placental edge within 2.5 cm of internal os, undergo transabdominal sonography. Patients were subdivided into three groups: low-lying placenta (0.1–2.5 cm), marginal previa (touching but not overlapping the os), and complete previa (covering the os). Low placentation was used as a descriptive for all cases (low-lying placenta, marginal previa, and complete previa) in this study. A group of randomly identified control patients with normal placentation was selected for comparison.

Results : During the period of study, 408 women with low placentation were identified. Compared to controls, patients with second-trimester low placentation had increased rates of postpartum hemorrhage and uterotonic use. These increased risks persisted even among women in whom the low placentation resolved ($\chi^2 = 42.270$, d.f.=1, $p < .001$; $\chi^2 = 40.370$, d.f.=1, $p < .001$).

Conclusions : Women with a second-trimester diagnosis of low placentation are at increased risk of postpartum hemorrhage.

KEYWORDS

low-lying placenta; postpartum hemorrhage; previa; resolution

INTRODUCTION

Low-lying placenta or placenta previa at term is known to be associated with increased risks of antepartum and intrapartum hemorrhage, often requiring cesarean delivery. In addition, women with placenta previa at delivery have an increased risk of postpartum hemorrhage.[1] Most experts would agree that a placenta is not in a low position during the second trimester if it is greater than 2.5 cm from the internal os.[2]

Many studies suggest that two-thirds of women with complete placenta previa in the second trimester and up to 98% of those with a low-lying placenta will resolve by term.[3] They also suggest that a vaginal trial of labor may be appropriate for women whose placenta is at least 1 cm from the internal os at term.[4] The question remains whether there are other morbidities associated with having had a placenta implanted in the lower uterine segment even when the low placentation resolves. Purpose of this study is to estimate whether second-trimester low placentation (low-lying placenta, marginal previa, and complete previa) is an independent risk factor for postpartum hemorrhage at delivery.

MATERIALS AND METHODS

This hospital based prospective study was conducted in the Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur (Rajasthan). After taking informed and written consent, 408 cases fulfilling inclusion criteria were recruited for our study. A detailed history was taken and thorough general and abdominal examination was done. Transabdom-

inal sonography for placental localization at 18 weeks' and 24 weeks 6 days'. For the purpose of this study, a low-lying placenta was defined as a placenta with an edge located 0.1 to 2.5 cm from the cervical os on transvaginal sonography; a marginal placenta previa was defined as a placenta that touched but did not overlap the cervical os; and a complete placenta previa was defined as a placenta that covered the cervical os. Low placentation was used as a descriptive term for all cases (low-lying placenta, marginal previa, and complete previa) in this study.

Follow-up sonograms were reviewed, and documentation of resolution was recorded. Resolution was defined as a sonogram subsequent to the qualifying second-trimester sonogram that showed the placental edge to be greater than 2.5 cm from the internal os. Persistent low placentation was defined as a follow-up sonogram showing the placental edge 2.5 cm or less from the os within 28 days of delivery. If no sonogram was available within 28 days of delivery and resolution was never shown, a case was considered to have insufficient data. Women who met inclusion criteria during the study period but did not have a placenta less than 2.5 cm from the os were used as control patients. A computer-generated random-number list was used to select a number equal to that in the low-placentation group.

All women received intravenous oxytocin (30 U in 500 mL of normal saline) standard as part of the institutional protocol for the prevention of postpartum hemorrhage. Additional utero-

tonic medications (misoprostol, methylergonovine, and carbo- prost) were available at the provider's discretion in the event of a postpartum hemorrhage. Secondary outcomes included hospitalization for antepartum bleeding, blood transfusion, and uterotonic use (misoprostol, methylergonovine, or carbo- prost).

Sample size was calculated with α error 0.05 and power 80% assuming postpartum haemorrhage in 10.2% of low lying placenta. ² test was used to compare proportions between groups.

RESULTS

In our study 408 women were identified as having low placenta- tion on second-trimester sonography. Follow-up sono- graphic data were available for women with a diagnosis of low placenta- tion in the second trimester. Of the 408 women with a diagnosis of a low-lying placenta during the second trimester who had sufficient follow-up data, 250 were docu- mented to have resolved during the course of the pregnancy, resulting in a resolution rate of 61.27%.

Silent features of our study are women with second-trimes- ter low placenta- tion were at increased risk of antepartum admissions for bleeding (19.2% versus 10.72%; $P < .01$), postpartum hemorrhage (45.6% versus 21.45%; $P < .001$), and uterotonic use at the time of delivery (44.44% versus 20.95%; $P = .001$). Low lying placenta in second trimester, even though resolved was associated with increased incidence of caesarean section (39.6% versus 31.42%; $P = .001$) and blood transfusion was required for atleast 2 times of patients (23.2% versus 12.22%; $P < .01$) compared to controls (Ta- ble-1).

DISCUSSION

Existing literature suggests that most cases of low-lying pla- centa and many cases of placenta previa will resolve by term. [3] Consistent with these prior studies, this study shows that nearly 99% of cases of low-lying placenta and more than half with complete previa will resolve by delivery. Although most cases of low placenta- tion diagnosed at the second-trimester anatomic survey will resolve by delivery, these women remain at higher risk for postpartum hemorrhage.

Several prior studies have examined the relationship between low placenta- tion and adverse pregnancy outcomes, with con- flicting findings. Magaan et al[5] found that a placenta less than 2 cm from the os during the second trimester was asso- ciated with an increased risk of preterm labor and delivery but a decreased risk of postpartum hemorrhage. That study was limited by a relatively small sample size ($n = 93$) and a defini- tion of postpartum hemorrhage (estimated blood loss >1000 mL for both vaginal and cesarean deliveries), which may not have captured all women who had excess bleeding.[5] A second study by Ogueh et al[6] showed an increased incidence of postpartum hemorrhage (odds ratio, 1.6; 95% confidence interval, 1.0–2.5) among women whose second-trimester pla- centa was implanted in the lower uterine segment. Although that study included a large cohort of women ($n = 703$), the placental location was not evaluated consistently with trans- vaginal sonography, and the distance from the os was not described.[6] A recent study by Robinson et al[7] investigated obstetric outcomes of women with a transabdominal sono- graphic diagnosis of a low-lying placenta in the second trimes- ter. They found no difference in obstetric outcomes with the exception of postpartum hemorrhage of greater than 1000 mL.[7]

Our study was conducted to determine how often cases of a low-lying placenta diagnosed in the second trimester persist into the third trimester as placenta previa and go on to require cesarean delivery and remain at increased risk for PPH.

CONCLUSION

Our data suggest that low-lying placenta in second trimester is strongly associated with adverse feto-maternal outcome. De-

spite the high frequency of resolution, women with low pla- centa- tion in the second trimester remain at increased risk for postpartum haemorrhage. This information may be useful in the counselling of women who are found to have low placen- tal in the second trimester.

TABLES

Table – 1
Obstetric Outcomes Stratified by Second-Trimester Pla- centa- tion

Characteristic	Low Placenta- tion Resolved (n=250)	Normal Placenta- tion (n=401)	p value
Antepartum admission for bleeding	48 (19.2%)	43 (10.72%)	<.01, Sig
Caesarean delivery	99 (39.6%)	126 (31.42%)	<.001, HS
Postpartum hemorrhage	114 (45.6%)	86 (21.45%)	<.001, HS
Blood transfusion	58 (23.2%)	49 (12.22%)	<.01, Sig
Uterotonic use	111 (44.44%)	84 (20.95%)	<.001, HS
Surgical Intervention	53 (13%)	24 (5.98%)	<.001, HS

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