



COMPARING THE INCIDENCE OF MIGRATION OF PLACENTA IN ANTERIOR AND POSTERIOR PLACENTA: A PROSPECTIVE STUDY

Obstetrics & Gynaecology

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ABSTRACT

Introduction: Placenta previa and low-lying placenta are significant conditions during pregnancy, characterized by the placenta's proximity to the internal cervical os. Low-lying placentas are often diagnosed in the second trimester but generally migrate upward as gestation progresses. This study aims to compare migration rates between anteriorly and posteriorly implanted low-lying placentas. **Materials And Methods:** A prospective study was conducted at ASCOMS Medical College, Jammu, from July 1, 2023, to June 30, 2024. Pregnant women (n=216) presenting for routine antenatal visits between 18 and 20 weeks underwent transvaginal ultrasonography. Those with placental edges less than 2 cm from the internal os were followed up at 30 weeks to see for placental migration. Participants were categorized based on anterior or posterior placental location. **Results:** Initially, 28 (12.96%) patients were diagnosed with low-lying placenta, which decreased to 12 (5.55%) at term, indicating a migration rate of 57.14%. Among the 10 posterior placentas, 60% migrated, while anterior placentas showed a migration rate of 55.5%. No significant differences were observed in maternal age, parity, or BMI between the groups. **Discussion:** The findings suggest that a significant proportion of low-lying placentas migrate before term, with posterior placentas showing a slightly higher migration rate compared to anterior ones. These results align with previous studies indicating that placentas located closer to the os are less likely to migrate successfully. **Conclusions:** Monitoring low-lying placentas via transvaginal ultrasound is crucial for predicting potential complications. Anterior placentas and those closer to the os demonstrate lower migration rates, necessitating further research with larger cohorts to validate these findings and explore maternal factors affecting placental migration.

KEYWORDS

Low lying placenta, placental migration, placenta previa

INTRODUCTION

The term placenta previa refers to a placenta that completely covers the internal cervical os and the term low-lying placenta is used to define a placenta implanted in the lower uterine segment with the inferior placental edge <2cm from the internal os (1). Transvaginal ultrasonography is superior to transabdominal ultrasonography for diagnosis and evaluation of low-lying placenta (2). Low-lying placentas are commonly diagnosed during the second trimester but the prevalence declines markedly at term. This process of resolution is referred to as migration of placenta (3). Placenta previa and low-lying placentas are associated with significantly increased risk of foeto-maternal morbidity and mortality (4-7). Previous studies have identified placental location, maternal age and prior surgical interventions as risk factors for failure of migration of placenta(8-9). The present study aims to compare rates of migration between anteriorly and posteriorly implanted placentas.

MATERIAL AND METHOD

In this prospective study, patients presenting to OBGYN department at ASCOMS Medical College, Jammu between 1st July 2023 and 30th June 2024, for undergoing routine antenatal visit between 18 and 20 weeks of gestation were advised to undergo transvaginal ultrasonography for localisation of placenta. Patients with lower placental edge less than 2cm from the internal cervical os were recruited for the study. Patients with twin pregnancy were excluded. Patients with history of diabetes mellitus, hypertension and previous history of GDM and pre-eclampsia were also excluded. The recruited patients were followed up with transvaginal ultrasonography at 30 weeks to see if placental edge migrated beyond 2cm from the os. Patients were divided into 2 groups based on their placental location as anterior or posterior. Placental migration in both the groups was noted.

RESULTS

A total of 216 antenatal mothers underwent transvaginal ultrasonography at 18 to 20 weeks of gestation. At the time of this first scan 28 patients were diagnosed as having low lying placenta (12.96%). The number of low-lying placentas decreased to 12 (5.55%) at term. Thus, the rate of placental migration was 57.14%.

At initial scan, 10 placentas were documented to have an posterior implantation and 18 were anterior. Among the posterior placentas 4 were located at a distance of 1cm or less from the os and 6 were located between 1 and 2cm. Among the former group 2 placentas had migrated at term and 4 did so in the latter group. Among the anteriorly located placentas, 7 were located less than or equal to 1cm and 11 were located

at a distance of 1-2 cm from the os. Among these groups, 3 and 7 placentas respectively were able to migrate till term.

Table 1. Demographic Data Of The Patients

Variables	Anterior placenta (n=18)	Posterior placenta (n=10)	Mean
Maternal age	29.0 ± 2.8	28.8 ± 2.9	28.9 ± 2.8
Parity	1.6	1.8	
BMI	25.0 ± 2.2	25.2 ± 2.3	25.1 ± 2.2

Both the groups were not significantly different with regards to age, parity and BMI.

Table 2. Incidence Of Low Lying Placenta At Mid Trimester And At Term As Well As Rate Of Placental Migration

Total number of patients	Low lying placenta at mid trimester scan	Low lying placenta at term	Rate of migration
216	28 (12.96%)	12 (5.55%)	57.14%

Table 3. Rate Of Migration Of Placenta In Anterior And Posterior Group

Position of placenta	Distance from os	Mid-trimester	No. Of migration at Term	Rate of migration
Posterior	≤1cm	4	2	50%
	>1cm	6	4	66.67%
Anterior	≤1cm	7	3	42.85%
	>1cm	11	7	63.63%

Table 4. Relation Between Mode Of Delivery And Placenta Location

Previous mode of delivery	Anterior placenta (n=18)	Posterior placenta (n=10)
Cesarean section	9	3
Normal vaginal delivery	9	7

In our study, incidence of migration of placenta in posterior group (60%) was found to be more than in anterior group (55.55%).

DISCUSSION

Low lying placentas are commonly discovered at about 20 weeks of gestation and most of these placentas migrate out of the lower segment by term. Various mechanisms have been postulated to explain this migration including differential growth of upper and lower uterine segment and atrophy of the part of placenta overlying the relatively poorly vascularised lower segment (10). On comparing with similar

studies done previously we observe that incidence of low-lying placenta at mid-trimester scan (12.96%) is higher than that observed by **Jyostna et al** (8.08%) and **Banerjee et al** (8.26%). In these studies, the rates of migration were 70.73% and 68.3% respectively compared to a rate of 57.14% observed in our study. However, these studies had used a distance of less than 3cm from the os to label the low-lying placentas whereas we have used the currently accepted distance of 2cm. Using the cut-off of 2cm we observe that these studies agree on a rate of migration of about 42%. These differences can be attributed to different composition of study groups with regards to their obstetrical history and parity. All these three studies agree that posterior placentas are more likely to migrate than anterior ones. However, a study done by **Debasish et al** found that placental migration was more common in anteriorly situated placentas as compared to posterior placentas which is in contrast to our study. They found the rate of anterior placental migration to be 65.85% with the rate for posterior placentas being 40%. The rates of migration were different in all the studies with our study showing a difference of 4.45% between migration in posterior (60%) and anterior placentas (55.55%). The non migration of placenta in patients with history of cesarean section may be attributable to increased adherence of placenta to the scar from this procedure. Among both the groups placentas located less than 1cm from the os were less likely to successfully migrate than placentas located more than 1cm from the os (11-14). Anterior placentas typically migrate more than posterior placentas. Paradoxically, our study found that posteriorly located placentas migrated more than anterior ones, likely due to the increasing number of cesarean sections and the adherence of the placenta to scar tissue.

LIMITATIONS

The study was conducted with a relatively small cohort of patients over a limited time span of a year. Since the study was done in a tertiary care hospital, the incidence calculated may not reflect an unselected cohort of antenatal mothers. The cohort selected can be expected to reflect a greater number of patients with adverse outcomes of previous pregnancies and thus the results may not be generalizable.

CONCLUSIONS

Persistence of mid-trimester low-lying placentas is an important concern in obstetric practice as it is associated with adverse outcomes. Transvaginal ultrasound serves to determine the anatomical relationship between the placenta and the os and to follow the change in this relationship with progression of pregnancy. Most of the placentas diagnosed early in a pregnancy can be expected to migrate successfully by term. However anteriorly situated placentas are less likely to migrate as are placentas located closer to the os at the mid trimester scan. Studies with larger cohorts are required to determine the rates of placental migration and its relationship with various maternal factors.

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