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Original Research Article

A prospective study on placental migration in mid trimester low lying placenta

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ABSTRACT

Background: Objectives of the study were: to assess migration of low-lying placenta diagnosed by ultrasound around 20 weeks of gestation and to evaluate the factors influencing placental migration as well as to reduce fetomaternal morbidity and or mortality by excluding placenta previa and placenta accreta early.

Methods: All antenatal mothers undergoing routine transabdominal congenital anomaly scan around 20 weeks of gestation were subjected to transvaginal ultrasonography to confirm low lying placenta. Every 4 weekly transvaginal ultrasonography was repeated until the lower edge of placenta migrated beyond 3 cm of internal cervical os or the patient had delivered, whichever was earlier.

Results: Out of total 686 cases, only 56 (8.16%) mothers had low-lying placenta in mid trimester. Follow up of these 56 cases showed that 33 (58.93%) cases placenta had migrated at term and 23 (3.35%) cases persist as placenta previa. The rate of migration of placenta was 80.76%, 39.13% and 42.86% in mothers following previous vaginal delivery, caesarean section or prior history of MTP/suction and evacuation. Placental migration was 80% and 47.39% where the distance between the internal cervical os and lower edge of placenta was between 2.1-3 cm and between 1.5-2 cm respectively. No placental migration was noted where the initial distance was less than 1.5 cm. Placental migration was more common in anteriorly situated placenta (65.85%) than the posterior one (40%).

Conclusions: The rate of placental migration at term was 58.93%. However, factors like previous caesarean section, previous history of MTP or suction and evacuation, posteriorly situated placenta and placenta lying 1.5 cm from the internal cervical os may interfere with placental migration.

Keywords: Low lying placenta, Migration, Placenta previa

INTRODUCTION

Low lying placenta is defined as when the placenta is implanted in the lower uterine segment such as the placental edge does not reach the internal cervical os, but lies close proximity to it. Significance lies on its association with fetomaternal morbidity or mortality. Low lying placenta is a common finding in routine antenatal ultrasound done at 20 weeks of gestation.¹ Transvaginal ultrasonography is more superior than transabdominal ultrasonography for localization of

placenta in mid trimester.² The prevalence of low lying placenta in the second trimester where the placenta is situated within 3 cm from the internal cervical os which is diagnosed ultrasonographically ranges between 6 to 46% and it reduces to 0.5% during term due to migration of placenta.³ Differential growth between well vascularized upper uterine segment and comparatively less vascular lower uterine segment of uterus and placenta is the main physiological basis of placental migration.⁴ Placental migration is less likely to occur when placenta is situated posteriorly or if there is previous caesarean section scar

and lower edge of placenta lies less than 1.5 cm from the internal cervical os. The present study was aimed to evaluate the factors influencing placental migration as well as to reduce fetomaternal morbidity or mortality by excluding placenta previa and placenta accreta early.^{5,6}

METHODS

In this prospective study all the antenatal mothers attending NRS Medical College and Hospital, Kolkata from 01 January 2021 to 31 December 2021 undergoing routine obstetric transabdominal congenital anomaly scan between 18 to 20 weeks of gestation were subjected to transvaginal ultrasonography. The inclusion criteria were antenatal mothers with low lying placenta i.e., the distance between the leading edge of placenta and the internal cervical os of less than 3 cm at 18-20 weeks of gestation, women with prior caesarean section, and prior history of MTP or suction and evacuation. Exclusion criteria was twin pregnancy. Every 4 weekly transvaginal ultrasonography was repeated until the lower edge of placenta migrated beyond 3 cm from internal cervical os or the patient had delivered, whichever was earlier. The statistical analysis was done by GraphPad statistical software.

RESULTS

During our study period total 686 antenatal mothers undergone transvaginal ultrasonography around 20 weeks

of gestation to diagnose low lying placenta. Among these 56 mothers were diagnosed to have low lying placenta. In our study the prevalence of such condition in mid trimester was 8.16%. Follow up ultrasonography of these 56 cases showed that in 23 cases the placenta had migrated at term. So, the prevalence of placenta previa was around 3.35% at term and rate of placental migration was 58.93% (Table 2).

Though risk factors like multiparity, advance maternal age influence the placental migration, but there was no significant association of maternal age and parity in either the incidence or migration noted in the present study.

The rate of migration of placenta was more common following vaginal delivery (80.76%) than mother with previous caesarean section (39.13%) or mother with previous history of MTP or suction and evacuation (42.86%) (Table 3).

When the initial distance between the internal cervical os and lower edge of placenta was between 2.1 to 3 cm, the highest rate of placental migration noted (80%, 24/30). Only 47.39% (9/19) cases migration was seen when the distance between the two was 1.5 to 2 cm. But there was no placental migration in cases where the initial distance was less than 1.5 cm (Table 4).

In this study placental migration was more common in anteriorly situated placenta (65.85%, 27/41) than the posterior one (40%, 6/15) (Table 5).

Table 1: Demographic data of the patients.

Variables	Placental migration	Mean±SD	P value
Age (years)	Yes (33)	23.21±3.01	<0.0001
	No (23)	27.47±3.23	
Gravida	Yes (33)	1.58±0.51	<0.0001
	No (23)	2.70±1.21	

Table 2: Prevalence of low-lying placenta at mid trimester and at term as well as rate of placental migration.

Trimester (n=686)	Number of low-lying cases	Prevalence (%)	Rate of placental migration (%)
Mid trimester	56	8.16	58.93
Term	23	3.35	

Table 3: Relation between previous pregnancy events and placental migration.

Previous pregnancy events	Number of mid trimester low lying placenta	Number of placental migrations at term	Percentage of migration
Vaginal delivery (n=300)	26	21	80.76
Caesarean rates (n=286)	23	9	39.13
MTP/S&E (n=100)	7	3	42.86

Table 4: Placental migration in relation to initial distance from internal cervical os.

Initial distance from internal cervical os (cm)	Number of mid trimester low lying placenta (n=56)	Number of placental migration at term (n=33)	Percentage of migration
<1.5	7	0	0.00
1.5-2	19	9	47.37

Continued.

Initial distance from internal cervical os (cm)	Number of mid trimester low lying placenta (n=56)	Number of placental migration at term (n=33)	Percentage of migration
2.1-3	30	24	80

Table 5: Placental migration in relation to the position of placenta.

Position placenta	Number of mid trimester low lying placenta	Number of placental migrations at term	Percentage of migration
Anterior	41	27	65.85
Posterior	15	6	40

DISCUSSION

The diagnosis of low-lying placenta is a common finding at the routine antenatal ultrasound done at 20 weeks of gestation due to multiple factors, such as routine congenital anomaly scan done around 20 weeks of gestation in many tertiary level hospitals nowadays and more commonly transvaginal ultrasonography is done for confirmation, assessment of placental migration from this stage and prevalence of previous caesarean section mothers increased much more. In our present study prevalence of low-lying placenta was noted to be around 56 (8.16%) cases, which was slightly higher than study done by Joystna et al, (8.08%) but much higher than study done by Taipale where prevalence was 4.5%.^{7,8} Out of 56 cases 33(58.93%) cases had migrated placenta at term, which was less than the study done by Joystna et al, 7 (70.73%), persistent of low-lying placenta in our present study was 23 (3.35%). The increased incidence and persistence of low-lying placenta was more commonly seen in mothers with previous caesarean section. Injury to the endometrium during caesarean section promote abnormal placentation and impairs placental migration.^{9,10} In the present study out of 26 mothers of previous vaginal delivery, 21 (80.76%) had migrated placenta at term, in 5 (19.24%) cases there was persistence of low-lying placenta, among 23 prior caesarean section cases, the placental migration was noted in 9 (39.13%) cases which was comparatively less than previous vaginal delivery cases. These above finding correlated well with the study done by others.⁷ Following MTP or suction and evacuation out of 7 patients 3 (42.86%) cases had migrated placenta at term. It was seen in some studies that 1.7 times higher chance of low-lying placenta following MTP.⁹

Migration of placenta mainly depends on the initial distance between internal cervical os and lower edge of placenta at mid trimester. In some studies, 100% cases where placenta lies less than 1.5 cm from the internal cervical os continues as placenta previa at term.^{7,11} In this present study also 100% cases there was no placental migration where placenta situated less than 1.5 cm from internal os during mid-trimester. But placenta migrated more commonly i.e., 9 (47.37%) and 24 (80%) cases where placenta was situated 1.5-2 cm and 2.1-3 cm respectively from internal cervical os at mid trimester which is quite comparable with other studies.¹² Contrary to other reports, in the present study anteriorly situated placenta (27/41,

65.85%) was more commonly migrated than the posteriorly situated placenta (6/15, 40%).^{7,13-15}

Limitations

The study was done for one year of observation which was very short. Larger studies may require for better evacuation of fetomaternal outcome. As the study was done in a tertiary level hospital the number of previous caesarean section cases (both institutional follow up or referred one) were more compared to the general population.

CONCLUSION

Low lying placenta is a major health concern to the obstetrician due to its persistence as placenta previa and rarely as placenta accreta and its associated fetomaternal morbidity or mortality. In present study 58.93% of mid trimester low lying placenta migrate to the upper uterine segment by term. However, factors such as previous caesarean section, previous history of MTP or suction and evacuation, posteriorly situated placenta and placenta lying within 1.5 cm from the internal cervical os may interfere with placental migration.

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