

Outcome of low-Lying placenta at 18-22 Weeks- A Prospective Observational Study

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ABSTRACT

BACKGROUND

Haemorrhage contributes to 25% of maternal deaths worldwide. Placenta previa i.e. Placenta attached to lower uterine segment, is an important cause of antepartum and postpartum haemorrhage and is associated with some foetal and neonatal complications as well. Most of the low-lying placentas found at early weeks of pregnancy migrate to upper uterine segment before term or before delivery.

METHODS

This prospective observational study was conducted on the outcome of low-lying placenta at 18-24 weeks, in the Department of Gynaecology and Obstetrics, NRS Medical College, Kolkata from May 2013 to April 2014. 75 asymptomatic women with low lying placenta (distance less than or equal to 2 cms from the internal cervical os), discovered by trans-abdominal USG and/or transvaginal sonography at 18 to 22 weeks of gestation. They were observed up to 6 weeks post-partum for maternal and foetal complications.

RESULTS

Placenta was found to migrate to upper uterine segment in 77.3 % cases. Rate of migration decreased in placenta closer to os and overlapping the os. Migration was more in posterior placenta than anterior placenta which was statistically significant. Persistence of low-lying placenta at term was associated with higher age and increasing parity of the mother; in both these situations the association was statistically significant. H/o previous Caesarean section was associated with persistence of low-lying placenta about 1.9 times more commonly than in cases with no such history. Prior termination of pregnancy (MTP) was associated with higher chance of persistence of low lying placenta at term or delivery (27.7%) with odds ratio of 1.44; whereas multiple pregnancy (odd's ratio= 1.1) and prior placenta previa (odd ratio 1.1) are minor risk factors for persistence of low lying placenta at term or delivery. Low lying placenta if associated with bleeding in early months showed less chance of migration at term or delivery. Higher incidence of malpresentation, atonic PPH, preterm birth and iatrogenic CS was found in persistent placenta previa group. Unlike other complications, there is slightly increased preterm delivery rate in migrated group also. Among foetal complications, IUGR and congenital anomalies, birth asphyxia, neonatal death were more common in persistent placenta previa group compared to migrated group, which was statistically significant.

CONCLUSIONS

So, cases found with low lying placenta in early months, should be assessed carefully regarding presence of risk factors of persistence in lower segment. Mother should be counselled regarding this possibility of migration and also maternal and foetal risks in case placenta persists in low position.

KEY WORDS

Antepartum Haemorrhage, Low-Lying Placenta, Placenta Previa, Placental Migration, Atonic PPH, Mal Presentation, Neonatal Outcome

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DOI: 10.14260/jemds/2019/654

*Financial or Other Competing Interests:
None.*

How to Cite This Article:

Karmakar KS, Paria L, Chattopadhyaya D.

Outcome of low-lying placenta at 18-22

weeks-a prospective observational study. J.

Evolution Med. Dent. Sci. 2019;8(40):

3010-3013,

DOI:

10.14260/jemds/2019/654

Submission 25-05-2019,

Peer Review 17-09-2019,

Acceptance 25-09-2019,

Published 07-10-2019.



BACKGROUND

Haemorrhage is the most terrifying complication of pregnancy contributing to 25% of maternal deaths worldwide. Placenta previa is one important cause of antepartum haemorrhage and can also lead to postpartum haemorrhage. It is a condition characterised by insertion of placenta wholly or partially in the lower uterine segment. Painless, recurrent bleeding per vagina has been the hallmark of placenta previa and symptoms and signs are usually proportionate to the amount of blood loss. It complicates 0.4 – 0.8% of pregnancies but incidence changes with presence or absence of risk factors.¹ Perinatal mortality rates are 3-4 times higher in placenta previa.²

Low lying placenta can be diagnosed with excellent accuracy from early antenatal period along with its grading. Transvaginal sonography is superior to transabdominal sonography in this indication.³ The incidence of low-lying placenta sonographically diagnosed in the 2nd trimester ranges from 6-46 % which decreases to as low as 0.5 % at delivery.⁴

Lower incidence at term is due to placental migration which is the positional change of the placenta from the lower segment to upper segment with advancing gestation and is due to net result of differential growth of two parts of placenta i.e., appropriate growth of the part attached to well vascularised fundus and degeneration of peripheral villi in the lower uterine segment that receives less blood supply. It is also due to differential growth rate of lower segment of uterus and placenta. This phenomenon is more pronounced in anterior than in posterior low-lying placenta.⁵

Most of the studies on low lying placenta are retrospective studies, case reports and concentrated on placental migration. The aim of this study is to evaluate pregnancy outcome of cases where a low-lying placenta defined as margin of placenta at a distance of <2 cm from internal os as detected at 18-22 weeks of pregnancy.

METHODS

This prospective observational study was conducted in the Dept. of Gynaecology and Obstetrics, NRS Medical College, Kolkata from May 2012 to April 2013, after the protocol had received clearance from Institutional Ethics Committee, NRS Medical College.

Among all the women attending antenatal clinic, consecutive 75 women were with low lying placenta (distance less than equal to 2 cm from the internal cervical os) discovered by trans-abdominal USG and/or transvaginal solography at 18 to 22 weeks of gestation but having no symptoms of bleeding, were taken for study, after they met the inclusion criteria and had given informed consent. These cases were followed by TAS or TVS at 30-32 weeks and then at 2-3-week interval to note the placental migration till term/delivery whichever was earlier. Clinical presentation, risk factors, gestational age at delivery, mode of delivery, Intrapartum and postpartum complications, time of delivery, birth weight, 5-minute Apgar score were recorded. Mother and baby were followed up till 6 weeks post-partum.

RESULTS

Location of low-Lying placenta at 18-22 Weeks	No of low-Lying placenta at 18-22 Weeks (%) N=75	No of low-Lying placenta at Term/ Delivery (%) N=17	Migrated placenta at Term (%) N=58	Likely hood Ratio	95% CI
Within 1-2 cm	38(50.6%)	1(3%)	37(97%)	0.0922	0.0136 to 0.624
Not overlapping but within 1 cm	21(28%)	2(10%)	19(90%)	0.359	0.0928 to 1.390
Overlapping < 2.5 cm	12(16.2%)	10(84%)	2(16%)	17.059	4.129 to 70.484
Overlapping >2.5 cm	4(5.3%)	4(100%)	0(0 %)	∞	1.517 to ∞

Table 1. Placental Migration in Relation to Distance from Internal-Os

Table 1 shows decreased rate of migration as the placenta becomes closer to internal os or overlaps it. Placenta that overlapping >2.5 cm at 18-22 weeks has 0% migration at term/delivery.

Position of placenta	No. of low-Lying placenta at 18-22 Weeks (%)	No. of low-Lying placenta at Term/ Delivery (%)	Migrated placenta at Term (%)
Posterior	21	1(4.7%)	20(95.3%)
Anterior	54	16(29.6%)	38(70.4%)

Table 2. Placental Migration in Relation to the Position of placenta. (n=75)

As shown in table 2, anteriorly situated low lying placenta showed lesser migration (70.4%) than posteriorly situated placenta (95.3 %). And it is statistically significant (p value= 0.04, odd ratio= 8.42).

Age	No of low-Lying placenta At 18-22 Weeks	No of low-Lying placenta at Term/ Delivery (%)	Likelihood Ratio	95% Confidence Limit
< 20 yr.	20	2(10%)	0.500	0.130 to 1.917
20 to < 25 yrs.	26	3(11.5%)	0.577	0.200 to 1.663
25 to <30 yrs.	16	2(12.5%)	0.625	0.160 to 2.439
30 to < 35 yrs.	9	5(55.5%)	2.778	1.083 to 7.127
>/= 35	4	3(75.3%)	3.750	0.934 to 15.064

Table 3. Frequency Distribution of Study Population According to Age Group and Site of placenta (n=75)

Statistical Test

$\chi^2 = 17.65$ p= 0.0014. df= 4

So, the result is statistically significant.

Persistence of low lying placenta at term or delivery is increased with maternal age (Table 3) as in this study persistence of low lying placenta at term or delivery consisted of 10% in <20 year, 11.5% in 20 to<25 year, 12.5% in 25-<30 year, 55.5% in 30 to < 35 year and 75.3% in >/= 35 age group and this difference is statistically significant with p value being 0.0014.

Parity	Low-Lying placenta at 18-22 Weeks (%) n=75	No of low-Lying placenta at Term/ Delivery (%) n=17	Migrated placenta at Term (%) n=58	Likely-hood Ratio	95% CI
P ₀	5(6.66%)	0 (0%)	5(100%)	0.000	0.000 to 5.936
P ₁	28(37.3%)	5 (17.8%)	23(82.2%)	0.742	0.333 to 1.654
P ₂	38(50.6%)	9 (23.6%)	29 (76.4%)	1.059	0.631 to 1.775
P ₃ and above	4(5.3%)	3 (75%)	1 (25%)	10.235	1.137 to 92.162

Table 4. Distribution of Study Population According to Child Birth (n=75)

Statistical Test

$\chi^2= 7.34, df=2, p= 0.026.$

Table 4 shows increased parity associated with persistence of low-lying placenta at term or delivery and it is statistically significant as p value is 0.026.

Predisposing Factors		No of low-Lying placenta at 18-22 Weeks	No of low-Lying placenta at Term/ Delivery (%)	Migrated placenta at Term (%)	Odds Ratio
Prior LSCS	Present	12	4(33.3%)	8(66.6%)	1.9
	Absent	63	13(20.6%)	50(79.4%)	
Multiple pregnancy	Present	4	1(25%)	3(75%)	1.1
	Absent	71	16 (21.3%)	55(78.7%)	
Prior termination of pregnancy	Present	18	5(22.5%)	13(77.5%)	1.44
	Absent	57	12 (21%)	45(79%)	
Placenta previa in previous pregnancy	Present	4	1(25%)	3(75%)	1.1
	Absent	71	16 (22.5%)	55(77.5%)	

Table 5. Distribution of Study Population According to other Predisposing Factors (Multiple Response)

More than one (>1) predisposing factor are present in some cases. Table 5 shows that, h/o previous caesarean section was associated with persistence of low lying placenta at term or delivery (33.3%) (odd ratio= 1.9) So it was shown that those who had h/o prior LSCS had 1.9 times chances of persistence of placenta previa at term or delivery than those who didn't have h/o prior LSCS. Prior termination of pregnancy (MTP) was associated with higher chance of persistence of low-lying placenta at term or delivery (27.7%) with odd ratio 1.44. Multiple pregnancy (odd's ratio= 1.1) and prior placenta previa (odd ratio 1.1) are minor risk factors of persistence of low-lying placenta at term or delivery.

DISCUSSION

In the present study, out of 75 low-lying placentae, detected at 18-22 weeks 58 (77.3%) migrated. Mustafa et al,⁶ in 2002 found in a longitudinal study an incidence of low-lying placenta of 3.9% between 20-24 weeks, 1.9% at term. Lauria et al in 1996 found an incidence of low-lying placenta at 15-20 weeks of 1.1%, with 14% of these still present at delivery.

This table 1 shows decreased rate of migration as the placenta become closer to internal os or overlaps it. Placenta that overlapping >2.5 cm at 18-22 weeks has 0% migration at term/delivery. Shrivage Jyotsna C et al,⁷ the rate of placental migration was highest that is 91.66% (22/24) where the initial distance between the lower edge of the placenta and the internal os was more than 2 cm.

As shown in table 2, anteriorly situated low lying placenta showed lesser migration (70.4%) than posteriorly situated placenta (95.3 %) which is statistically significant. Ruparelia et al,⁵ Shrivage Jyotsna et al⁸ found in their study of placenta previa anteriorly situated low lying placenta showed lesser migration (64.51%) (20/31) when compared to posteriorly situated placenta (90%) (9/10).

Persistence of low-lying placenta at term or delivery is increased with maternal age (Table 3) in this study. Cleary-Gold-man and associates⁸ showed those older than 35 years had a 1.1% risk for previa compared with that of 0.5% for women less than <35 years (2005). Ananth CV et al² also found that increasing age is a risk factor for placenta previa.

This is probably due to overall decreased vascularity of uterus with age and thus the mechanism responsible for migration is not effective.

Table 4 shows increased parity associated with persistence of low-lying placenta at term or delivery and it is statistically significant as p value is 0.026. Ananth CV et al² reported that the likelihood of placenta previa increases in a dose response fashion with a greater parity. Babinszki et al⁹ reported that the 2.2% incidence of placenta previa at term in women para 5 or greater was increased significantly compared with that of low parity.

Table 5 shows that, h/o previous caesarean section was associated with persistence of low-lying placenta at term or delivery (33.3%) with odds ratio= 1.9. It has been suggested that damage to the endometrium during caesarean section predisposes to low implantation of the placenta and also impairs the ability of placenta to migrate. Prior termination of pregnancy (MTP) was associated with higher chance of persistence of low-lying placenta at term or delivery (27.7%) with odd ratio 1.44. Multiple pregnancy (odd's ratio= 1.1) and prior placenta previa (odd ratio 1.1) are minor risk factors of persistence of low-lying placenta at term or delivery. Sohrabi Davood, Parivar Kazem and Ebrahimi Sepideh in 2008¹⁰ concluded that potential risk factors for placenta previa included previous spontaneous or induced abortions, previous caesarean sections. To WW, Leung WC in 1995¹¹ found that incidence of placenta previa was significantly increased in those with a previous caesarean section (1.31%) compared with those with an unscarred uterus (0.75%) (RR 1.64). This risk increased as the number of previous caesarean sections increased (R.R. 1.53 for one previous section, 2.63 for two or more). The incidence of an anterior placenta previa and placenta accreta was significantly increased in those with previous caesarean scars. Darios Getahun, Yinka Oyelese, Hamisu M Salihu in 2006 ¹² concluded that pregnancy after caesarean delivery was associated with increased risk of placenta previa (0.63%) compared to those with vaginal delivery (0.38%). (RR 1.5, 95% confidence interval [CI- 1.3-1.8]. Ananth and associates (2003A)¹³ reported the rate of placenta previa 40% higher in multifoetal gestation. Multifoetal pregnancy has large placenta and the mechanism responsible for migration of placenta do not work effectively due to large placenta. In present study due to small number of patients, relationship with multifoetal gestation with persistence of low-lying placenta could not be assessed properly. Taylor VM (1993)¹⁴ concluded that women who report one or more induced or spontaneous abortions are 30% more likely to have a subsequent pregnancy complicated by placenta previa than women without such a history.

CONCLUSIONS

Though low-lying placenta is a common finding in routine early trimester USG scan causing apprehension among patients and relatives, in most of the cases placenta migrates upwards at term or before delivery. Persistence of low-lying placenta is associated with higher maternal age, parity, anterior position, prior h/o LSCS, h/o bleeding in 2nd and 3rd

trimester, shorter distance from margin and internal os. This will help to predict as to in which case placenta is likely to migrate. Cases with persistent low-lying placenta were associated with significantly high foetomaternal complications like atonic PPH, prematurity, SGA baby, congenital anomaly, perinatal mortality. But cases with migrated placenta were not associated with more complications except the increased risk of preterm delivery. With better awareness about low-lying placenta among the general population, there is always need for proper counseling regarding probability of migration of placenta and risk factors for persistence in low position. Larger prospective trials are needed for better understanding of outcome in such cases.

REFERENCES

- [1] Conje C, Taylor DJ. Bleeding in late pregnancy. In: James DK, Steer PJ, Weiner CP, et al. eds. High risk pregnancy: management options. 3rd edn. Philadelphia: Saunders 2007;59:111, 1259.
- [2] Ananth CV, Smulian JC, Vintzileos AM. The effect of placenta previa on neonatal mortality: a population-based study in the United States, 1989 through 1997. *Am J Obstet Gynecol* 2003;188(5):1299-304.
- [3] Lauria MR, Smith RS, Treadwell MC, et al. The use of second-trimester transvaginal sonography to predict placenta previa. *Ultrasound Obstet Gynecol* 1996;8(5):337-40.
- [4] McClure N, Dornan JC. Early identification of placenta previa. *Br J Obstet Gynecol* 1990;97:959-61.
- [5] Ruparelia BA, Chapman MG. Early identification of placenta previa (letter). *Br J Obstet Gynaecol* 1991;98(5):499.
- [6] Mustafa SA, Brizot ML, Carvalho MH, et al. Transvaginal ultrasonography in predicting placenta previa at delivery: a longitudinal study. *Ultrasound Obstet Gynecol* 2002;20(4):356-9.
- [7] Jyotsna SC, Hema DA, Bellad MB. Assessment of placental migration in mid trimester low lying placenta. *J Obstet Gynecol India* 2009;59(4):317-9.
- [8] Cleary-Goldman J, Malone FD, Vidaver J, et al. Impact of maternal age in obstetric outcome. *Obstet Gynaecol* 2005;105(5 Pt 1):983-90.
- [9] Babinszki A, Kerenyi T, Torok O, et al. Perinatal outcome in grand and great grand multiparity: effects of parity on obstetric risk factors. *Am J Obstet Gynecol* 1999;181(3):669-74.
- [10] Davood S, Kazem P, Sepideh E. Selected pregnancy variables in women with placenta previa. *Res J Obstet Gynecol* 2008;1(1):1-5.
- [11] To WW, Leung WC. Placenta previa and previous caesarean section. *Int J Gynaecol Obstet* 1995;51(1):25-31.
- [12] Getahun D, Oyelese Y, Salihu HM, et al. Previous caesarean delivery and risks of placenta previa and placental abruption. *Am J Obstet Gynaecol* 2006;107(4):771-8.
- [13] Ananth CV, Demissie K, Smulian JC, et al. Placenta previa in singleton and twin births in the United States, 1989 through 1998: a comparison of risk factor profiles and associated conditions. *Am J Obstet Gynecol* 2003;188(1):275-81.
- [14] Taylor VM, Kramer MD, Vaughan TL, et al. Placenta previa in relation to induced and spontaneous abortion: a population based study. *Obstet Gynecol* 1993;82(1):88-91.