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Original Research Article

# Evaluation of Outcomes of Pregnancy Based on Placenta Previa Position

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**Abstract:**

**Background:** Placenta previa is defined when placenta partially or completely covers internal OS. Placenta previa affects the onset of labour and mode of delivery in increases the rate of morbidity of mothers and newborns.

**Aim:** This study aimed to evaluate the effects of placenta previa on gestation and parturition.

**Methods:** Two hundred women with single fetus gestation and a low-lying placenta were taken for the study. In these women, the effects of complete and incomplete placenta previa were evaluated, along with the effects of placenta placed on the anterior and posterior wall of the uterus was also evaluated. Factors for evaluation were factors related to mothers' and newborns' health.

**Result:** Women who had completely low-lying placenta had higher events of preterm labour compared to the women who had incompletely low-lying placenta. The women who had completely low-lying placenta on the anterior wall of the uterus had even higher chances of preterm labour compared to the women who had completely low-lying placenta placed on posterior surface of uterus. In the case of an incompletely low-lying placenta, there was no significant difference between the onset of labour according to the position of the placenta.

**Conclusion:** The probability of adverse events during parturition increases in the case of a low-lying placenta. Knowing the effects of placenta previa on the mother's and newborn's health helps obstetricians take necessary measures before parturition.

**Keywords:** Placenta Previa, Haemorrhage, Parturition.



## Introduction

The placenta is the most important organ for supplying nutrition to the fetus. It develops during the implantation of the embryo on the wall of the uterus [1]. Positioning of this placenta plays a significant role when gestation advances especially during parturition. The Placenta placed on the upper side of the uterus is known as the fundal placenta, placenta placed on the lateral sides of the uterus walls is the lateral placenta, the placenta placed on the anterior wall of the uterus is the anterior placenta, the placenta placed on posterior surface of uterus is posterior placenta and placenta lying low toward the internal OS of uterus and covering all the parts of the internal OS of cervix is known as placenta previa [2, 3].

In the past, there were several cases of low-lying placenta reported which were associated with one or more adverse events [4]. The maternal adverse events included haemorrhage before and after parturition, requirement of blood transfusion, and the c-section delivery. Fetal health is also compromised due to placenta previa, there are higher chances of fetal death, stillbirth, and low heart rate of the fetus [5]. Although the factors that lead to placenta previa are not completely understood any previous operative procedure on the uterus including previous c-section, more number of deliveries, increased maternal age, and multiple pregnancies [6]. The position of the placenta can be determined only during the second or third trimester of pregnancy.

Necessary precautionary measures can prevent the occurrence of adverse outcomes. After determining the position of the placenta obstetrician can suggest preventive measures according to the frequent correlation between adverse outcomes and the position of the placenta. This study aimed to determine the effects of low-lying placenta on parturition and frequency of adverse events on maternal and fetal health.

## Materials and Methods

The data of 200 women who consented to the study was reviewed, The women selected for the study had placenta previa, with a single fetus and were visiting Anugrah Narayan Magadh Medical College and Hospital ,Gaya for antenatal care. The history of the patients was studied thoroughly the history of preterm labour, births given before, operative procedures on the uterus, previous caesarean section, and existence of tumours, polyps, fibroids and myoma was recorded.

In the case of low-lying placenta, it was further classified based on whether the placenta covered the whole internal OS or partially covered. If the placenta was attached to the anterior wall of the uterus, it was anterior and if it was attached to the posterior surface it was considered posterior.The history and occurrence of placenta previa were correlated at first, and after that, the adverse events that occurred due to placenta previa were recorded. Adverse events included haemorrhage, the requirement of emergency cesarean, the need for hysterectomy due to accumulation of placenta in the myometrium, neonatal death, and low birth weights compared with the position of the placenta.

Evaluation parameters included assessing the severity of haemorrhage, the haemoglobin count before and after the surgery, APGAR score and birth weight less than 2000 of the neonates for the evaluation of fetal health, if the C-section was performed before the 37th week due to abnormal heavy bleeding then it was considered emergency c-section, and the histologic study of the endometrium to evaluate the accumulated placenta in the uterus.

All these adverse events and parameters to evaluate them were recorded for the anterior and posterior low-lying placenta as well as for the placenta covering completely the internal OS of cervix and those partially covering the internal OS Of Cervix.

## Statistical Analysis

The data obtained was statistically analyzed with the help of statistical software for social science. The significance of the correlation between adverse events and low-lying placenta was determined by calculating the p-value. The Pearson value of less than 0.05 was considered significant.

## Results

Amongst all the pregnant women with low-lying placenta and single fetuses, 88 had their placenta completely covering the internal OS. Among these 88 women, 26 had their placenta attached to the anterior wall of the uterus that is in the anterior position, whereas the remaining 42 had their placenta attached to the posterior wall. Of the 200 women, there were 112 women who had low-lying placenta but it partially covered the internal OS. Among them, there were 98 whose placenta was attached to the anterior wall of the uterus and 14 who had their placenta at the posterior wall of uterus.

When the history of the patient was compared with the position of the placenta it was found that patients with previous cesarean section delivery had higher chances of anterior and complete low-lying placenta. Other than that there was no significant relation found between the occurrence of low-lying placenta and the mother's history. Preterm labour before, any other operative procedure of disease did not play a significant role in the positioning of the placenta.

When the comparison is made between the occurrence of adverse events and its association with completely low-lying and incompletely low-lying placenta. It is found that haemorrhage has a significant relation with a completely low-lying placenta. Similarly, another factor is delivery before 34 weeks was more in the case of completely low-lying placenta. However numerically the cervical length less than 3.5 mm of the mother during delivery was more in the case of completely low-lying placenta than the incompletely low-lying placenta but it was not significantly relevant

when compared statistically. The neonatal adverse events such as low birth weight and APGAR score less than 7 for 1 min and 5 min were significantly associated with completely low-lying placenta when compared statistically.

When the anterior and posterior position of the placenta is compared it is obtained that the haemorrhage, the accumulation of the placenta in the myometrium, and delivery before 34 weeks were significantly more in the case of the anterior placenta when compared statistically. Similarly, foetal adverse events such as low birth weight and APGAR score less than 7 were found significantly more amongst the patients with anterior placenta. It was also observed that intraoperative bleeding was heavier in the case of patients with anterior completely low-lying placenta. Table No. 1 summarizes the findings of the study.

**Table 1: Summary of the findings**

| Parameters | Number of women | | | |
|---|---|---|---|---|
| **Types of placenta** | **Anterior placenta completely covering the internal OS** | **Anterior placenta partially covering the internal OS** | **Posterior placenta completely covering the internal OS** | **Posterior placenta partially covering the internal OS** |
| Hemorrhage | 18 | 07 | 33 | 13 |
| Delivering in week lesser than 34 | 10 | 01 | 06 | 00 |
| Delivering in week lesser than 37 | 20 | 03 | 20 | 07 |
| Cervical length less than 3.5 mm during delivery | 12 | 07 | 28 | 14 |
| Occurrence of accumulation of placenta in the myometrium | 07 | 02 | 03 | 00 |
| **Neonatal adverse events** | | | | |
| Weight less than 2000 gm | 10 | 01 | 05 | 03 |
| Weight less than 2500 gm | 16 | 04 | 19 | 13 |
| APGAR score less than 7 for 1 min | 06 | 02 | 04 | 01 |
| APGAR score less than 7 for 5 min | 02 | 00 | 01 | 00 |

## Discussion

The first factor that was considered in this study was the occurrence of placenta previa and maternal characteristics. The only characteristic responsible and significant to the occurrence of placenta previa was a previous cesarean section. Having a placenta previa increases the risk of developing adverse events but the aetiology of its occurrence is not well understood [7].

Adverse events such as haemorrhage, emergency cesarean section, and delivery before 34 weeks were more common amongst patients with completely low-lying placenta. This correlation is found in some other studies as well [8,9]. However, there are some studies which are contradictory. Such difference in the study is because the number of patients with different types of placenta previa varies a great amount hence errors while statistically analyzing the data are significant.

The anterior low-lying placenta has more chances of adverse events than the posterior low-lying placenta. Also, the occurrence of accumulation of placenta in the myometrium of the uterus is more in the case of anteriorly low-lying placenta, which leads to severe events such as hysterectomy. Interestingly the occurrence of such accumulation of placenta was observed in the women who had 1 more cesarean section before and now they had anterior low lying placenta completely covering the internal OS. This derivation is consistent with various studies [10]. It is thought to be attributed to the scar that occurred during cesarean previously and the placenta is now placed in the same position which causes accumulation of the placenta in the myometrium [11,12].

The occurrence of anterior lying placenta is less comparatively but the adverse events are relatively more in this case. It can be attributed to the fact that the anterior wall of the uterus is subjected to physical movements when compared to the posterior wall of the uterus [13]. This is the cause for more occurrence of adverse events in the case of anteriorly low-lying placenta that covers the internal OS completely.

## Conclusion

Occurrence of adverse events is more common with the anterior low-lying placenta that completely covers the internal OS. Monitoring of the placenta in the second and third trimester should be done and precautionary measures should be taken to prevent the occurrence of adverse events.

More studies are required in this domain to determine that the correlation is significant.

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