JMS 2023; Vol6 (2):172-178
UDC:618.36-007.4(497.7)"2021/2022"
DOI:10.55302/JMS2362172e

PLACENTA PRAEVIA AND IT' OUTCOMES IN CHILDBIRTH

Eftimova-Kitanova Alexandra
Doctoral Studies in Clinical Medicine, Faculty of Medicine, University of St. Cyril and Methodius" in Skopje

Abstract

Placenta previa is a problem during pregnancy when the placenta fully or partially covers the opening of the uterus (cervix). The aim of this study is to determine the incidence, obstetric risk factors, maternal mortality and morbidity and perinatal outcomes in women presented with placenta previa. A total of 100 pregnant women with placenta previa were analyzed from October 2021 to December 2022. year.

After applying the criteria for inclusion and exclusion, these women were analyzed in terms of their age, parity, gestational age and clinical characteristics in presentation, history of warning bleeding, duration of hospitalization, need for blood transfusion, period of pregnancy in childbirth and pathway of childbirth.

A total of 90% of the births were complicated by Placenta previa, including 30.0% of women over 30 years of age and 80% were multipara. 60.4% had large-scale placenta previa, 33% had previous birth by caesarean section, 6.4% had a previous abortion, 12% of the cases had postpartum bleeding and 3.7% had adherent placenta.

***Keywords*:** Placenta previa, caesarian section, blood transfusion.

Introduction

Placenta previa is a disorder that happens during pregnancy that is characterized by the presence of placental tissue close to or covering the cervix.

The greatest risk of placenta previa is bleeding. Bleeding often occurs as the lower part of the uterus begins to stretch and lengthen in preparation for delivery. When the cervix begins to efface and dilate, the attachment of the placenta to the uterine wall is detached, resulting in bleeding [1].

Placenta previa has an atypical placement. According to the degree of placenta alignment, the placenta is divided into marginal, partial, total and low placenta.

The incidence of placenta previa is 3-5 per 1000 pregnancies worldwide, and it is still rising because of increasing caesarean section rates. This is because a uterine scar in the lower segment may attract a low implantation of the placenta.

The incidence is much higher during the middle of the pregnancy than at 36 weeks and above because of formation of the lower segment of the uterus and possibly due to trophotropism resulting in resolution of placenta previa [2].

Several studies attempted to define risk factors for placenta previa, and pointed out an association with advanced maternal age, parity, maternal smoking, infertility treatments, previous caesarean deliveries, previous placenta previa, and recurrent abortions.

Among the aforementioned risk factors, several have increased during the past decades including the rate of caesarean sections, advanced maternal age, and the number of women undergoing infertility treatments [3]

Table 1. Complications of placenta previa [4]

Newborn	Mother
Congenital malformations	Placenta abruption
Low weight	Premature birth
Jaundice	Higher rates of blood transfusion
Abnormal fetal occurrence	Increased incidence of postpartum endometritis
Neonatal respiratory distress syndrome	Hemorrhage
Admission to neonatal intensive care department	Re-bleeding
Longer stay in hospital	High death rate as a result of uterine bleeding
Fetal intrauterine growth retardation	
Fetal anemia	
High rate of neonatal death	
Nerve development delay	
Infant death syndrome	

Epidemiology

Risk factors

The risk factors of placenta previa are [5]:

1. Previous or recurring abortions;
2. Previous surgery or uterine injury;
3. Low socio-economic status;
4. Smoking;
5. Treatment of infertility;
6. Multiparity (5% in large multipara patients);
7. Multiple pregnancy;
8. Short interval between pregnancy;
9. Previous birth by caesarean section;
10. Advanced age of the mother (>35);
11. Previous placenta previa (4-8%); and
12. Use of cocaine.

Placental implantation is carried out by an embryo (embryonic plate) by adhering to the lower (Caudad) uterus. In essence, parts of the placenta that have undergone atrophic changes could survive as vasa previa. The placental attachment is interrupted because this area is gradually diluted to prepare for the start of childbirth. This leads to bleeding at the implantation site, such as the uterus is incapable of receiving enough blood flow from open vessels [6]. Thrombin release from the bleeding sites stimulates the uterus of contractions and leads to a cycle of bleeding, i.e., contractions – separation of the placenta – bleeding.

Dealing with placenta previa

There is a continuous expectation of huge bleeding and premature birth in a patient with placenta previa, therefore, satisfactory preparation is needed. Diffuse bleeding often occurs during implantation in the lower uterus after childbirth and at that point the use of uterotonics, including methylergonovine maleate (Methergine), methyl prostaglandin F2 alpha (Hemabate), concentrated oxytocin or misoprostol are excellent pharmacological aids that help in solving the uterine atonia, which is the primary driver of hemorrhage after childbirth. In some cases, alternatives include surgical intervention. On such occasions, activation of the mass transfusion circuit is justified in the meantime thinking to adapt the patient with hemodynamic status to the method of rapid supply of blood products.

Indications for hospitalization

For generally uncomplicated pregnancy, it is necessary to continue with identical treatment in a patient with a placenta by the time the bleeding occurs. Recent studies showed no difference in maternal or fetal morbidity with domestic treatment versus hospitalization before the competent doctor enters the process. Any patient with suspicious or known placenta previa and initial vaginal bleeding should be admitted to a treatment center for observation [7].These centers will try to institutionalize the range of hospitalized, given the long-term nature of dying.

Surgical approach

There is limited information about control management and in what capacity, the delivery planning is suspicious. However, in patients with uncomplicated placenta previa, transfer is prescribed in the late preterm period between 36 weeks and 0 days to 37 weeks and 0 days of pregnancy. This places the minimum risk of expiration while further reducing the risk of overture to the embryo[8].

Coping with blood loss

These complex pregnancies should include birth plans that include blood coordinated by the patient in order to agree to the idea of a caesarean hysterectomy. Blood reduction in a caesarean-related hysterectomy accident offers the chance to monitor a potential postoperative leakage with embolization as opposed to operational re-examination [9].

In the case of the occlusion of the aortic balloon before a c-section hysterectomy, it was also found that it reduces blood loss. Other means of bleeding control include the following:

- Hysterectomy;
- Ligature of hypogastric artery;
- Ligation of the uterus artery; and
- B-Lynch or parallel vertical compression with threads.

In the case of small and focal acreage of the placenta, resection at the implantation site and primary repair can allow the preservation of the uterus.

In case the patient is in danger of intrusive placenta (accreta, increta or percerta), at that point the patient must be placed to deliver blood from the surgical group. These intrusive placentas convey a high mortality rate (7% with placenta accreta) and a high rate of awfulness (blood transfusion, contamination, damage to neighboring organs, etc.) [10].

Purpose

The purpose of the study is to determine the frequency and way of completing the birth of pregnant women with placenta previa.

Materials and methods

Retrospectively, at the Mother Teresa Chair Special Hospital for Gynecology and Obstetrics - Skopje, a total of 9,000 births were analyzed over a period of two years (2021 and 2022), of which 100 were with placenta previa. The T-test was used during the statistical data processing. 100 women over 38 weeks of age were tested and diagnosed with placenta previa during or after admission and during caesarean birth. Details that were evaluated were: their age, parity, gestational age and clinical

characteristics in presentation, the detailed history of current pregnancy and previous pregnancies, the gestation period in which the placenta was diagnosed and the history of warning bleeding.

About the gestational age of newborns at delivery the following was recorded: APGAR scores, birth weight, need for admission to neonatal intensive care, birth rate, neonatal mortality rate and the presence of congenital anomalies. Both mothers and babies were followed throughout the period of their hospitalization until their discharge.

Results

The adult distribution is shown in Table 2. Almost a quarter of the women are over 30 years of age.

Table 2. Age distribution

Age	No.	Percentage
Under 20 years old	9	8. 4
20-24 years	33	31.2
25-29 years	33	32.2
30 years and over	25	24.6

The type of placenta is overtaken depending on the location (observed either by placental localization with ultrasound or previa observed in the birth by caesarean section for another indication and where the ultrasound examination failed to notice the placenta previa) is shown in Table 3. There were 64 (60.4%) cases of placenta overtaken with a large degree in this series.

Table 3. Placenta position

Placenta type	No.		Percentage	
	Front	Rear	Front	Rear
Type 1	16	9	15	8.5
Type 2	14	13	13.1	12.9
Type 3	15	10	14.9	9.5
Type 4	23		23	
Total	100		100	

32 (30%) were administered with a history of vaginal bleeding, while 24 (24.5%) developed bleeding after intake. 34 (26.4%) cases remained in hospital for more than a week after the placenta diagnosis.

During this period there were 33 (31%) cases with one previous birth by caesarean section, 3 (2.8%) cases with 2 previous caesarean section births, 6 (5.4%) had a previous abortion and 1 (0.9%) case had previous manual removal of the placenta. 90 (83.8%) cases were caused by caesarean section and 10 (9.2%) cases were caused by vaginal pathway.

11 (10.3%) cases were diagnosed 32 weeks before, 27 (25.6%) cases were caused between 32-37 weeks and 62 (61.3%) cases were released after 37 completed weeks.

Table 4. Additional surgical procedures

Type of procedure	No.	Percentages
Ligature of the uterus artery	3	2.7
Emergency peripartal hysterotomy	4	3.7
Ligature of the uterus artery followed by a hysteroctomy	1	0.8
Emergency peripartal hysteroctomy followed by ligature of the internal iliac atheria	1	0.7

12 (1 1.7%) cases had postpartum haemorrhagy and 4 (3.7%) had adherent placentas. Additional surgical procedures conducted to control bleeding are shown in Table 4.

In the current case study, a total of 86 (84.9%) cases received blood transfusions. In this section there were 92 (84.8%) taken to intensive care of which 3 (2.8%) cases had acute kidney injury, 1 (0.9%) case of septicaemia and 1 (0.9%) death of the mother.

Table 5. Neonatal outcomes

Factors	No.	Percentage
Gestational age (gender)		
28-32 weeks	10	9.3
33-36 weeks	30	29.4
Over 37 weeks	60	58.8
Weight		
Under 1.5 kg	7	6
1.5-2.4 kg	22	21.5
2.5-3.4 kg	68	66.8
Over 3.5 kg	2	1.2
APGAR score	12	11.3
Taken to neonatal intensive care	31	30.2
Premature birth	40	39.7
Birth of a dead baby	7	6.4
Early neonatal death	14	13.4
Congenital anomaly	1	0.9

Discussion

Placenta praevia is one of the most severe complications in obstetrics due to its associated negative maternal and perinatal outcomes. Research has shown that increasing age and pregnancy counts are an important risk factor in placenta praevia. In this study, almost a quarter of women were over 30 years of age and more than three-quarters of women (80%) were multipara. 25.2% of women surveyed included one on bed rest, periodic blood tests, vaginal bleeding monitoring and frequent fetal supervision with steroid therapy if pregnancy duration is less than 34 weeks. All this is causing a decrease in perinatal mortality.

Compared to previous obstetric history, 33% had a previous birth by caesarean section and 4.5% had a previous history of screening. In a retrospective cohort study of 300 women, the placenta rate prevailed at second birth for women in which the first vaginal birth was 3.4 per 1,000 births, compared to 7.6 per 1,000 births in omen with caesarean sections at first birth. After adjustment, the caesarean section at first birth remained associated with an increased risk of placenta praevia.

In this study, 6.4% of the cases had a history of previous abortion. Also, in this study, 33% of the cases were subjected to caesarean section, and the main indications of this is placenta praevia of a large extent, when the patient is in an exaggerated state due to bleeding or due to other obstetric indications.

There were also 12 cases of postpartum bleeding in this case study, of which 10 were treated with conservative surgical measures such as ligature of the uterus artery (2.7%), andperipartal hysterotomy (3.7%), ligation of the uterus artery followed by a hysteroctomy (0.9%) and peripartal hysterotomy followed by ligature of the internal iliac atheria (0.9%). In terms of complications in mothers, there is an increased rate of postpartum bleeding, transfusion of multiple units of blood and blood products, taken in intensive care and acute kidney injury attributed to placenta praevia.

A previous study of women diagnosed with placenta praevia has shown that out of 303 complicated pregnancies, there were only six neonatal deaths recorded. Advanced maternal age, multiparity, and previous histories of caesarean section were significantly associated risk factors of placenta praevia [11]. Another 10-year conducted cohort study shows that among women with a history of cesarean delivery, placenta previa was an independent risk factor for hemorrhage, placenta accreta spectrum and placenta previa during the subsequent pregnancy [12].

Another study of women diagnosed with placenta previa shows that maternal complications were hemorrhage needing blood transfusion, cesarean hysterectomy, and bladder injury but the others were with good outcome and no maternal death. The most identifiable risk factors for placenta previa were previous uterine scars, advanced maternal age, and multiparity, and it is associated with adverse maternal and fetal outcomes [13].

The neonatal morbidity in the study was also significant. 38.7% of the patients were born before the 37th week, and 30.2% of the newborns were applied to the neonatal intensive care unit. Morbidity was pronounced before the 34th week.

Conclusion

The progression of the age of the mother, multiparity, previous caesarean section and previous abortions are independent risk factors for placenta praevia. The increasing of the incidence of these risk factors probably contributes to an increase in the number of pregnancies complicated by placenta previa. Placenta praevia thus remains a risk factor for various complications that negatively affect the maternal and perinatal outcomes.

References

1. Palacios-Jaraquemada J. M. Caesarean section in cases of placenta praevia and accreta. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2013; 27(2): 221–232. doi: 10.1016/j.bpobgyn.2012.10.003.
2. Kiondo P., Wandabwa J., Doyle P. Risk factors for placenta praevia presenting with severe vaginal bleeding in Mulago Hospital, Kampala, Uganda. *African Health Sciences*. 2008; 8(1): 44–49.

3. Ezechi O. C., Kalu B. K. E., Nwokoro C. A., Njokanma F. O., Loto O. M., Okeke G. C. Placenta praevia: a study of risk factors, maternal and fetal outcome. *Tropical Journal of Obstetrics and Gynaecology*. 2004; 21(2): 131–134. doi: 10.4314/tjog.v21i2.14487.
4. Zlatnik MG, Cheng YW, Norton ME, Thiet MP, Caughey AB. Placenta previa and the risk of preterm delivery. *J Matern Fetal Neonatal Med*. 2007; 20(10): 719-23.
5. 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.
6. Bose DA, Assel BG, Hill JB, Chauhan SP. Maintenance tocolytics for preterm symptomatic placenta previa: a review. *Am J Perinatol.* 2011; 28(1): 45-50.
7. Silver, R. Abnormal placentation: Placenta previa, vasa previa, and placenta accreta. *Obstet Gynecolol*. 2015; 126: 654-68.
8. Allen BC, Leyendecker JR. Placental evaluation with magnetic resonance. *Radiol Clin North Am*. 2013; 51(6): 955-66.
9. Creasy RK, Resnik R, Iams J , Lockwood C, Moore T, Greene M. Placenta previa, placenta accreta, abruptio placentae, and vasa previa. *Creasy and Resnik's Maternal-Fetal Medicine: Principles and Practice*. 7th edn. Saunders: Philadelphia, PA 2014; 732-742.
10. Choi SJ, Song SE, Jung KL, Oh SY, Kim JH, Roh CR. Antepartum risk factors associated with peripartum cesarean hysterectomy in women with placenta previa. *Am J Perinatol*. 2008; 25(1): 37-41.
11. Adere A, Mulu A, Temesgen F. Neonatal and Maternal Complications of Placenta Praevia and Its Risk Factors in Tikur Anbessa Specialized and Gandhi Memorial Hospitals: Unmatched Case-Control Study. *J Pregnancy*. 2020; doi: 10.1155/2020/5630296.
12. Zhang L, Bi S, Du L. et al. Effect of previous placenta previa on outcome of next pregnancy: a 10-year retrospective cohort study. *BMC Pregnancy Childbirth*. 2020; 20(212). doi: 10.1186/s12884-020-02890-3.
13. Salim NA, Ismail S. Risk factors of placenta previa with maternal and neonatal outcome at Dongola/Sudan. *Journal of Family Medicine and Primary Care*. 2021; 10(3): 1215-1217. doi: 10.4103/jfmpc.jfmpc_2111_20
14. Gibbins KJ, Einerson BD, Varner MW, Silver RM. Placenta previa and maternal hemorrhagic morbidity. *The journal of maternal – fetal & neonatal medicine*. 2017; 21.
15. Herkowitz R, Fraser D, Mazor M, Leiberman JR. One or multiple previous cesarean sections are associated with similar increased frequency of placenta praevia. *Eur J Obstet Gynecol.* 1995; 62: 185–8.