AJMAS
https://journal.utripoli.edu.ly/index.php/Alqalam/index eISSN 2707-7179

Original article

Comparison of Maternal and Fetal Outcome in Placenta Previa between Elective versus Emergency Cesarean Section in Libya

Naamat Abid[1]*, Laila Benhamida[2], Maha Alzergany[3], Mona Bin salah[4], Salma Almeslati[2]

[1]*Department of Obstetrics and Gynecology, Aljala Maternity Hospital, Faculty of Medicine, University of Tripoli, Tripoli, Libya*
[2]*Department of Obstetrics and Gynecology, Tripoli University Hospital, Faculty of Medicine, University of Tripoli, Tripoli, Libya*
[3]*Department of Obstetrics and Gynecology, Faculty of Medicine, Misurata University, Misurata, Libya*
[4]*Department of Obstetrics and Gynecology, Tripoli Infertility Center, Faculty of Medicine, University of Tripoli, Tripoli, Libya*

ARTICLE INFO

Corresponding Email. *nanamahmoudabid@gmail.com*

Received*: 20-03-2023*
Accepted*: 06-04-2023*
Published*: 09-04-2023*

Keywords*. Placenta Previa, Elective Cesarean Section, Emergency Cesarean Section.*

ABSTRACT

Background and aims*. Placenta previa is a serious obstetric complication that affects 0.3% and 0.5% of all live births. It is linked to an elevated risk of preterm birth as well as perinatal mortality and morbidity. Cesarean section is advised for women with placenta previa. There is limited data about feto maternal complication of placenta previa in comparison between elective versus emergency cesarean section in Libya. The aim of this study was to compare the maternal and fetal outcome of elective and emergency caesarean section in placenta previa cases. Methods. A retrospective study was done in Aljala Maternity Hospital in Tripoli, Libya. Hospital records for the entire cohort of women who underwent cesarean section due to placenta previa over one year (January to December, 2018) were collected. The following data was obtained, age, gravidity, parity and history of abortion, history of cesarean section, maternal and neonatal outcome, and site and grade of placenta.* ***Results****. The prevalence of placenta previa was 5.2 per 1 000 births. About 56.3% of placenta previa cases was accidentally discovered in outpatient department, 41.8% of the cases asymptomatic and 43.6% had vaginal bleeding, 57.27% underwent planned cesarean delivery, and 32.7% required emergency cesarean delivery. The maternal complication such as intraoperative bleeding was 35.1% in the elective and 77.8% in the emergency. All babies who delivered by emergency were alive but in elective were 5.4% intrauterine fetal death.* ***Conclusion****. Placenta previa remains a risk factor for cesarean section delivery which adversely leads to various feto maternal complications in Libya.*

Cite this article. *Abid N, Benhamida L, Alzergany M, Bin salah M, Almeslati S. Comparison of Maternal and Fetal Outcome in Placenta Previa between Elective versus Emergency Cesarean Section in Libya. Alq J Med App Sci. 2023;6(1):152-159.*
https://doi.org/10.5281/zenodo.7812029

INTRODUCTION

Placenta Previa is an obstetric complication that classically presents as painless vaginal bleeding in the third trimester secondary to an abnormal placentation near or covering the internal cervical orifice OS. Pregnant women with placenta previa typically need a cesarean section delivery [1]. The incidence of placenta previa is approximately 5 per 1000 deliveries [2]. The complications of placenta previa are not confined to the prenatal stage, but also affect the intrapartum and postpartum course, including caesarean section, perinatal hysterectomy, abnormal placental adhesions and postpartum hemorrhage. Higher proportions can also complicate [3].

Regarding newborns born to mothers with placenta previa are more likely to have premature birth, perinatal death and an Apgar score at 1 minute and 5 minutes less than 7, more in emergency caesarean section [4]. Perinatal morbidity has also been studied, as the majority of babies will require resuscitation and neonatal intensive care unit (NICU) admission.

Moreover, the primary outcomes of this disorder for gestational age and low birth weight are low [5]. Thus, the current study was conducted to evaluate the feto maternal outcomes and comparison that between elective and emergency cesarean section in Libya.

METHODS

Study design and setting

A retrospective descriptive case series study was conducted in Aljalla Maternity Hospital in Tripoli, Libya, during January and December 2018.

Data collection

Fifty-five pregnant women with placenta previa were collected from the hospital files. The following data was obtained from the files: age, gravidity, parity, abortion history, history of caesarean section, elective caesarean section, maternal outcome and neonatal outcome. Site and grade of placenta, history of maternal ICU admission and NICE, maternal blood group, history of hysterectomy and urinary bladder injury.

Statistical analysis

Data was computerized using the Statistical Program for Social Sciences (SPSS version 16) that used for data entry and analysis. Descriptive statistics were used and all the findings were presented as frequency, percentage and mean ± standard deviation. Categorical data were compared using Chi-square test and t-test as appropriate. A p - value of less than 0.05 was considered significant.

RESULTS

Data revealed the prevalence of placenta previa was 5.2 per 1000 births. The mean age of women was 34.90 ± 6.03 years, 38.8% of them were aged between 31 -35 years as shown in Figure 1.

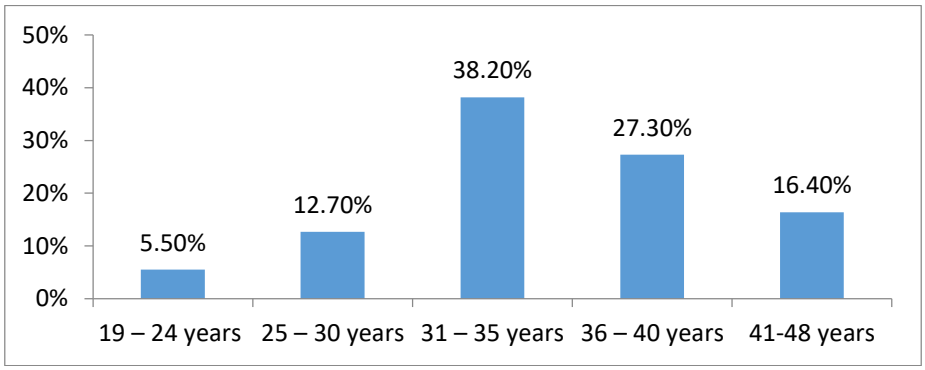

Figure 1. Age distribution of the pregnant women with placenta previa

The majority of the cases delivered their babies by elective caesarean (57.27%) and 32.73% were by emergency caesarean section as shown in Figure 2.

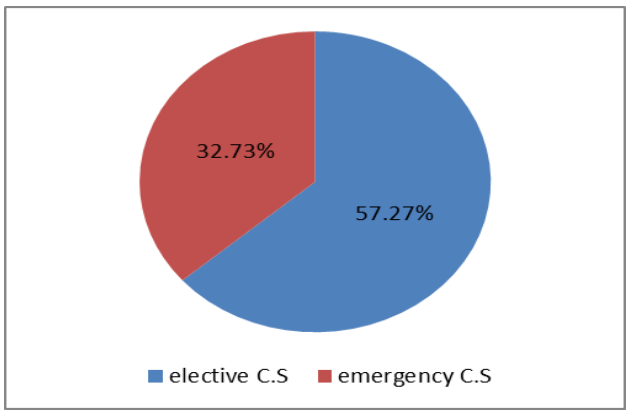

Figure 2. Elective and emergency cesarean section distribution

The mean gestational age was somewhat greater in elective caesarean section at 32 weeks than in emergency caesarean section at 31 weeks but there was no statistically significant difference between the groups (p = 0.766). In Table 1, it is demonstrated obstetric history of the Libyan cases studied with placenta previa. The mean age of women with placenta previa delivered by elective caesarean section were 35 years old and emergency caesarean section were 34-year-old. The difference between group in age was statistically not significant (p = 0.694).
Regarding the parity, the study revealed that in elective caesarean section mean parity was para two and in emergency caesarean section was para three. However, the difference is statistically not significant (p = 0.171). About the pervious history of cesarean section, the women with placenta previa had history of previous one cesarean section delivered elective caesarean section was 64.8% and emergency caesarean section was 50.0%.
Previous history of two - four was 27.0% in elective caesarean section and 44.4% in emergency caesarean section. The relaxation between previous cesarean section and type of cesarean section is statistically not significant (p = 0.737).

Table 1. Obstetric history distribution

Character	Elective cesarean section	Emergency cesarean section	P value
Parity			
0 - 1 para	10(27.0%)	03(16.7%)0	P = 0.171
2 - 4 para	21(56.8%)	08(44.4%)0	
> 4 para	06(16.2%)0	07(38.9%)0	
Pervious cesarean section			
0 - 1 pervious cesarean section	24(64.8%)	09(50.0%)	P = 0.737
2 - 4 pervious cesarean section	10(27.0%)	08(44.4%)	
> 4 pervious cesarean section	03(08.1%)	01(05.6%)	
Evocations and curettage			
Yes	06(16.7%)	03(16.2%)	P = 1.000
No	31(83.7%)	15(83.7%)	

As shown in figure 3, the majority of cases had no history of abortion (54.1% in elective and 66.7% in emergency caesarean section), while women with once abortion were 27.0% in elective and 16.7% in emergency, statistically significant (p = 0.033). Regarding evocation and curettage, 16.7% had history of evocation and curettage in elective and 16.2% among emergency, with no relation between those variables (p = 0.1).

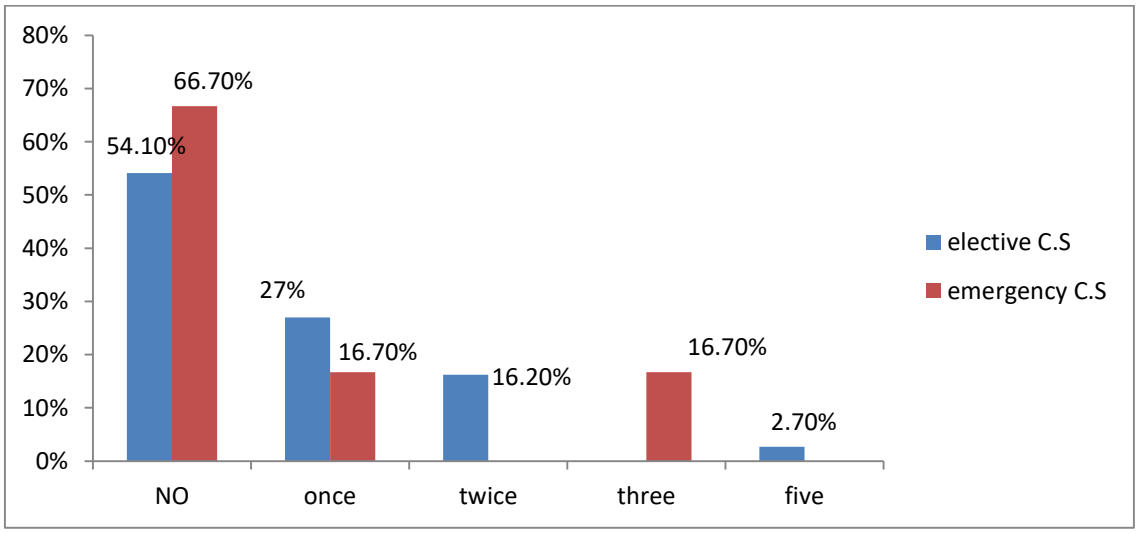

Figure 3. History of abortion between both types of caesarean section

With regarding placenta site and placental grade, the findings show that 51.4% and 61.1% of placenta were anterior site in elective and emergency caesarean section, respectively, while in posterior site were 48.6% and 38.9% in elective and emergency caesarean section, respectively, p = 0.495. About the grade of placenta previa, 35.0% and 72.2% were in grade 3 placenta previa in elective and emergency caesarean section, respectively, p = 0.062, as shown in Table 2.
Regarding maternal complication and management, data found that the intraoperative bleeding were 35.1% in elective caesarean section and 77.8% which is higher in emergency caesarean section. This difference is statistically significant (p = 0.003). Post-partum hemorrhage was 32.4% in elective and 77.8% in emergency caesarean section, statistically significant (p = 0.002). Urinary bladder injury was 11.0% in emergency caesarean section and no any bladder injury reported in elective caesarean section (p = 0.096) and with respect to hysterectomy, as maternal complication was 33.3% in emergency, and in elective caesarean section was 05.4% statistically significant (p = 0.006). The complication reported laparotomy was 27.8% in emergency and no history of laparotomy in elective caesarean section, statistically significant (p = 0.001). Furthermore, blood transfusion was 88.3% in emergency caesarean section (p = 0.003). Additionally, the maternal intensive care unit admission was more in emergency caesarean section (66.7%, p = 0.069). Regarding the histopathology stage of placenta previa, 87.7% was normal in elective and 05.6% was in emergency caesarean section and no maternal death reported between both types of caesarean section, Table 3.

Table 2: Distribution of placenta site and grade among the Libyan women with cesarean

Placenta	Elective caesarean n(%)	Emergency caesarean n(%)	P value
Anterior	19(51.4%)	11(61.1%)	0.495
Posterior	18(48.6%)	70(38.9%)	0.495
Grade 1	05(13.5%)	20(11.1%)	0.062
Grade 2	10(27.0%)	20(11.1%)	0.062
Grade 3	13(35.0%)	13(72.2%)	0.062
Grade 4	90(24.3%)	10(05.6%)	0.062

Table 3. Distribution of maternal complication and management

Maternal complication	Elective caesarean n(%)	Emergency caesarean n(%)	P value
Intraoperative bleeding	13(35.1%)	14(77.8%)	0.003
Post-partum hemorrhage	12(32.4%)	14(77.8%)	0.002
Urinary bladder injury	0	2(11.0%)	0.096
Bakar balloon	16(43.2%)	14(77.8%)	0.016
Hysterectomy	2(05.4%)	6(33.3%)	0.006
Laparotomy	0	5(27.8%)	0.001
Maternal blood transfusion	15(40.5%)	15(88.3%)	0.003
Pathology normal Accrete Increta Percreta	29(78.4%) 5(05.0%) 0 3(03.0%)	13(72.2%) 2(11.1%) 2(11.1%) 1(05.6%)	0.069
Maternal ICU	15(40.5%)	12(66.7%)	0.069

About symptoms of placenta previa 5 and site of discovery, data indicated that 66.7% were presenting symptoms of vaginal bleeding and 22.2% asymptomatic in emergency caesarean but in elective caesarean, 32.4% had vaginal bleeding and 51.4% asymptomatic (p = 0.190). In emergency caesarean, there were 72.2% had antepartum hemorrhage and 47.4% with post-partum hemorrhage, but in elective caesarean, there were 43.2% and 32.7% antepartum hemorrhage and post-partum hemorrhage, respectively, and this difference is statistically significant (p = 0.043 and p = 0.002 respectively). 67.7% of the cases of elective caesarean discovered accidentally during their follow up without symptom but 61.1% of emergency caesarean discovered in emergency room, their complaining vaginal bleeding (p = 0.068) as shown in Table 4.

Table 4: Distribution of symptom during discovery and site of discovery of placenta previa patients

Symptoms	Emergency caesarean n(%)	Elective caesarean n(%)	P value
Symptoms Asymptomatic Vaginal bleeding Abdominal pain Leakage decreased fetal movement Vaginal discharge	19(51.4%) 12(32.4%) 2(02.7%) 1(02.7%) 1(02.7%) 2(05.4%)	4(22.2%) 12(66.7%) 0 1(05.6%) 0 1(06.6%)	0.190
Bleeding Ant-partum hemorrhage post-partum hemorrhage Accidental discovery	16(43.2%) 12(32.7%) 25(67.6%)	13(72.2%) 14(47.4%) 6(33.3%)	0.043 0.002 0.016
Site of discovery During follow up Emergency room	24(46.9%) 13(35.1%)	7(38.9%) 11(61.1%)	0.068

In Figure 4, with regard to neonatal outcome, the Apgar score of the elective caesarean in the five minute, the majority were normal above or equal seven with a percentage of 83.8% and in emergency caesarean was 61.0% of Apgar score above seven, p = 0.063. The neonates who delivered by elective caesarean, 87.4% were term babies but in emergency caesarean, 72.2% were preterm (p = 0.454) and admission to the nursery were 70.6% of emergency caesarean and only 32.4% of elective caesarean (p = 0.009). 100% of the babies who delivered by emergency caesarean were alive but in elective caesarean were 5.4% intrauterine fetal death, and this difference is not significant. With regard to gender, the outcome was 62.2% boy in elective caesarean and 61.1% boy in emergency caesarean (p = 0.940). Normal birth weight from 2501 - 3500 g, 51.4% of elective caesarean and 66.7% of emergency caesarean (p = 0.056) as shown in Table 5.

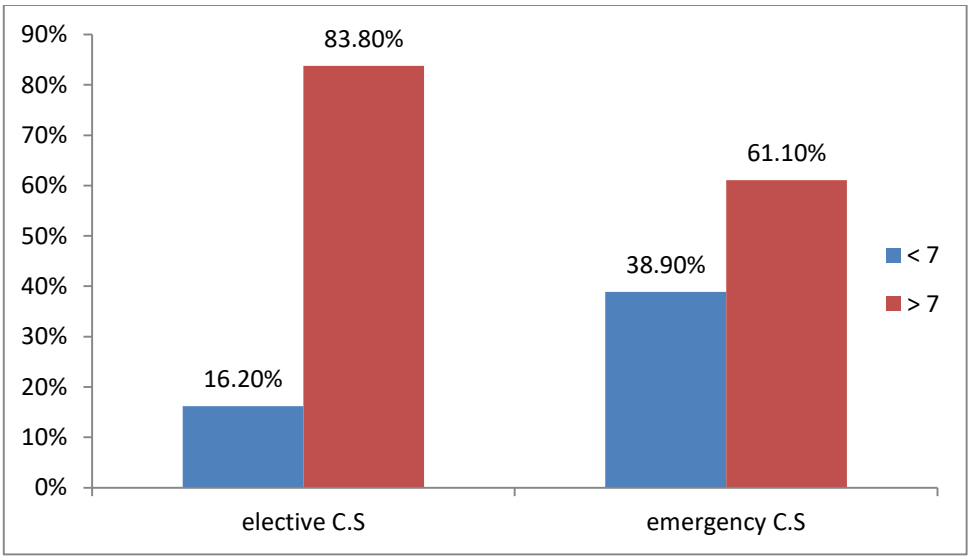

Figure 4. Distribution of Apgar score of neonatal after five minute

Table 5: Distribution of neonatal outcome of placenta previa patients

Neonatal outcome	Elective caesarean n(%)	Emergency caesarean n(%)	P value
Maturity (week)			
27 - 34	05(13.5%)	04(22.2%)	0.454
35- 40	32(86.55)	14(77.8%)	
NICU			
Yes	12(32.4%)	12(70.6%)	0.009
No	25(67.6%)	05(29.4%)	
Natal			
Alive	35(94.6%)	18(100%)	0.315
IUFD	02(05.4%)	0	
Gender			
Boy	23(62.2%)	11(61.1%)	0.940
Girl	14(37.8%)	07(38.9%)	
Birth weight (g)			
< 1500	02(05.4%)	0	0.056
1500 - 2500	05(13.5%)	06(33.3%)	
2501 - 3500	19(51.4%)	12(66.7%)	
3501- 4000	08(21.6%)	0	
> 4000	03(08.1%)	0	

DISCUSSION

One of the most common illnesses during pregnancy is placenta previa which develops when placental tissue is inappropriately positioned in the lower uterine segment over or close to the internal cervical OS [1]. Bleeding is the placenta previa concern that is most prevalent [6]. The only safe and appropriate mode of delivery for placenta previa is by cesarean delivery. For births in 2016 in Aljala Maternity Hospital, the incidence of placenta previa was 5.2 per 1 000 births.

In a previous study reported by Turkuman revealed the incidence of placenta pervia observed is 0.95% pregnancies [6] and a similar to study conducted in Thanjavur Medical College Hospital, India [7]. The large number of referrals to the study hospital, a tertiary care facility for high-risk pregnancies may help to explain the high incidence of placenta previa. Furthermore, more than half of placenta previa cases of the present study accidentally discovered during routing follow up and less than half a symptomatic and vaginal bleeding at presentation, half of the underwent planned cesarean delivery, quarter of them required emergent cesarean delivery.

The current study was aimed to compare maternal and fetal outcome in elective versus emergency cesarean section in placenta previa cases. Ananth and colleague [8], examined the effect of maternal age and parity on placenta previa in a large population based study. As both conditions were found to be linked to placenta previa, the authors concluded that placenta previa was associated with aging of the uterus and the effect of repeated pregnancies and pervious cesarean section scare. While studies found multiparty to be of more importance in predicting the occurrence of placenta previa [9] others found maternal age to be the crucial determinant of its occurrence [10,11]. Williams and Mittendorf [9] performed a multivariate analysis controlling for maternal age and parity in an attempt to establish which of the two factors was more significant in the prediction of placenta previa. Similar to present findings, the mean age in the current study was 34.90 years. The mean age of elective cesarean was 35 years old and emergency cesarean was 34-year-old, however, the advanced maternal age was strongly related to placenta previa. This finding is of a great importance. Indeed, placenta previa is consistently found to be more common in pregnancies of older women [11].

Clearly, it may be maintained that while dealing with pregnancies that occur at a relatively late age. Special attention should be given to the location of the placenta when the placenta invades into the myometrium, it is defined as placenta increta; placenta percreta refers to placenta villi's invasion through the myometrium and into the serosa and takes up to 0.9% of all pregnancies. The incidence of placenta previa accrete is about 3 per 1000 deliveries worldwide, which has been a significant increase in incidence of placenta previa accrete over the past decade [12, 13]. In the current study the placenta previa accrete is about 5.0% in elective caesarean section and 11.1% in emergency caesarean section and placenta increta is 11.1% in emergency caesarean section, and percreta 3.0% in elective and 5.6% in emergency caesarean section.

The study founded these important risk factor of increased level of caesarean section in placenta previa such as abortion, history of evacuation, curettage and previous caesarean section scar increase rate of placenta previa and delivery by caesarean section. A previous study reported Miller et al. [14] and Mcshane et al. [15] founded the placenta previa had these risk factors. The surgical disruption of the uterine cavity is known to cause lasting damage to the myometrium and endometrium. If a previous caesarean section is performed, there is a problem of angiogenesis in the previous operation site that may cause partial hypoxia. This hypoxia leads to incomplete decasualization and abnormal trophoblastic invasion that can cause placental adhesion [16].

Regarding maternal complication from placenta previa and cesarean section delivery and the study revealed most of these complications more in emergency caesarean section than elective caesarean section. The mean of admitted gestational age from 31 - 32 week, founded maternal complications as antepartum hemorrhage, intra operative bleeding, PPH, urinary bladder injury, hysterectomy, maternal intensive care admission, laparotomy and maternal blood transfusion as the previous studies [17,18] reported some of these surgical maternal complications. Regarding neonatal outcome, the most of baby delivered at 35 - 40 week, 86.5% in elective caesarean section and 77.8% in emergency caesarean section. The highest percentage of neonate's males born with elective caesarean section than emergency caesarean section as in previous studies [19, 20] were males more than females. High level of the neonates had normal birth weight from 2500 - 3500 g, more in emergency than elective caesarean section was observed. Else more, nursery admission more in emergency caesarean section than elective caesarean section and two cases reported of intrauterine fetal death in elective caesarean section than emergency caesarean section.

Regarding the Apgar score after five minute was more than 7, which is higher in elective caesarean section than in emergency caesarean section. As in other previous studies [19, 21], respiratory distress syndrome, prematurity, low Apgar score and neonatal death with different small percentage. Indeed, in the current study, no neonatal death found between both types of caesarean sections this may related to early presentation of patients with placenta previa or highly experienced team.

CONCLUSION

This study reports that the most prominent maternal morbidity is antepartum bleeding, intraoperative bleeding, post-partum hemorrhage and laparotomy post caesarean section in Libyan women. Blood transfusion is more common in emergency caesarean section than elective caesarean section. No difference appeared between emergency and elective caesarean sections with neonatal outcomes. Thus, early diagnosis of placenta previa and good follow up is essential concern to avoid a series complication.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

REFERENCES

1. Jauniaux ERM, Alfirevic Z, Bhide AG, Belfort MA, Burton GJ, Collins SL, et al. Placenta praevia and placenta accreta: Diagnosis and management. BJOG: Int J Obstet Gynaecol. 2019;126(1):1-132, e1-e61. doi.org/10.1111/1471-0528.15306.
2. Gyamfi-Bannerman C, Thom EA, Blackwell SC, Tita ATN, Reddy UM, Saade GR et al. Antenatal betamethasone for women at risk for late preterm delivery. N Engl J Med. 2016; 374 (14): 1311-1320. doi: 10.1056/NEJMoa1516783.
3. Ojha N. Obstetric factors and pregnancy outcome in placenta previa. J Institute of Med Nepal. 2012;34(2):38-41. doi: 10.3126/jiom.v34i2.9053.
4. Gargari S, Seify Z, Haghighi L, Shariati MK, Mirzamoradi M. Risk factors and consequent outcomes of placenta previa: report from a referral center. Acta Medica Iranica. 2016;54(11):713-717.
5. Prasanth S, Mehta P, Rajeshwari KS. Maternal and fetal outcome of placenta previa in a tertiary care institute: a prospective two year study. Ind J Obstet Gynecol Res. 2016;3(3):274-278.
6. Turkuman N, Almahdi L, Othman H, Alsharef A, Saleh Z, Jerbi R. Impact of placenta previa on maternal and neonatal outcome. Alq J Med App Sci. 2022;5(2):429-437.
7. Raja Rajeshwari R, Rubini M. Maternal and perinatal outcome in placenta previa - one year study in tertiary care center in Tamil Nadu, India. Int J Reprod Contracept Obstet Gynecol. 2016;5(8):2819-2822.
8. Ananth CV, Wilcox AJ, Savitz DA, Bowes WA, Luther ER. Effect of maternal age and parity on the risk of uteroplacental bleeding disorders in pregnancy. Obstet Gynecol 1996; 88:511-516
9. Nelson HB, Huston JE. Placenta previa: A possible solution to the associated high fetal mortality rate. J Reprod Med. 1971;7:188-941.

10. Zhang J, Savitz DA. Maternal age and placenta previa: a population-based study. Am J Obstet Gynecol. 1993; 166: 641-645.
11. Williams MA, Mittendorf R. Increasing maternal age as a determinant for placenta previa: more important than increasing parity? J Reprod Med. 1993; 38: 425-428.
12. Berkley EM, Abuhamad AZ. Prenatal diagnosis of placenta accreta: is sonography all we need? J Ultrasound Med. 2013; 32: 1345-1350.
13. Khong TY. The pathology of placenta accreta, a worldwide epidemic. J Clin Pathol 2008; 61: 1243-1246.
14. Miller D, Chollet J, Goodwin T. Clinical risk factors for placenta previa–placenta accreta. Am J Obst Gynecol. 1997; 177 (1): 210-214.
15. Mcshane P, Heyl P, Epstein M. Maternal and perinatal morbidity resulting from placenta previa. Obst Gynecol Surv. 1985; 40 (9): 577.
16. Wortman AC, Alexander JM. Placenta accreta, increta, and percreta. Obstet Gynecol Clin North Am. 2013; 40 (1): 137-154.
17. Lavanyakumari S, Arunajyothi C. A study On maternal and perinatal outcome in placenta previa. Scholars J App Medi Sci. 2014; 2 (5A): 1555-1558.
18. Gorodeski IG, Bahari CM. The effect of placenta previa localization upon maternal and fetal-neonatal outcome. J Perinat Med. 1987; 15 (2): 169-177.