

Original article

Evaluation of Pregnancy Outcome of Placenta Previa in Aljala Maternity Hospital

Marwa Asid¹, Amel Morgham^{2*} , Nasreen Osman², Karima Ali¹, Laylay Meeloud², Mohammed Sultan²

¹Aljala Maternity Hospital, Tripoli, Libya

²Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tripoli, Libya.

ARTICLE INFO

Corresponding Email. amelmorgham@yahoo.com

Received: 26-08-2021 **Accepted:** 11-09-2021 **Published:** 13-09-2021

Keywords: Pregnancy, Placenta Previa, Preterm.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>

ABSTRACT

Background and objective. Placenta Previa (PP) is associated with high demands on health care resources because it is a major cause of fetomaternal morbidity and mortality in developing countries. Complications include the potential for severe bleeding and preterm birth, as well as the need for cesarean delivery. This study aimed to determine prevalence, risk factors, and the adverse fetomaternal outcomes of placenta previa in Tripoli, Libya.

Methods. A retrospective cohort study conducted using the maternal medical records from Aljalaa Maternity and Gynecology Hospital from January 2019 to December 2019. **Results.** One hundred twenty-eight patients enrolled in this study; their mean age were 28.6 ± 4.5 years (range: 20-38 years). Sixty-six (51.6%) of these pregnant women were multipara and 62 of them (48.4%) were primigravida. The frequency of PP was 1%. About 77 (60.2%) patients were had major PP, while 51 (39.8%) had minor PP. Approximately, 31/51(61%) of minor PP were nulliparous (primigravida). About 50% of patients with PP had previous caesarean section. 34/51(66.6%) patients with minor pp and 59/77(76.6%) patients of major pp presented with antepartum hemorrhage whereas the postpartum hemorrhage is documented only in 13.7% of minor pp patients and 7.8% of major pp patients. We found that 42.9% of the patients were O+ blood group, 38% either A+ or B+. Five (3.9%) patients (2 minor pp and 3 major pp) end by caesarean hysterectomy. Mortality rate was 3.9% (3 major pp and 2 minor pp). There were no differences between the major and minor pp groups, in term of history of evacuation and curettage, history of caesarean section, and interval between the last caesarean section and current pregnancy. Regarding neonatal outcome, no difference between groups regarding admission to NICU, sex of newborn, birth weight and Apgar score at 1 minute and 5 minutes ($p > 0.05$). **Conclusion.** The placental location may be an important determinant of pregnancy outcome. This study highlights the need for comprehensive obstetrics care and early identification of women at risk of placenta previa as it may help to prevent such complications.

Cite this article: Asid M, Morgham A, Osman N, Ali K, Meeloud L, Sultan M. Evaluation of Pregnancy Outcome of Placenta Previa in Aljala Maternity Hospital. *Alq J Med App Sci.* 2021;4(2):200-208. <https://doi.org/10.5281/zenodo.5504351>

INTRODUCTION

Placenta Previa (PP) is associated with high demands on health care resources because it is a major cause of fetomaternal morbidity and mortality in developing countries. Placenta previa is an obstetric complication characterized by placental implantation into the lower segment of the uterine wall, covering whole (major) or

part (minor) of the cervix [1]. The risk factors for placenta previa include increasing parity, maternal age, fetus abortion, previous intrauterine surgery, male gender, twin pregnancies, previous caesarean section, previous uterine scar, fetal malpresentation and diabetes mellitus [2-4]. Placenta previa usually presents with painless vaginal bleeding in the late second or early third trimester. It is diagnosed on ultrasound imaging during the second trimester or incidentally during an operation. The incidence of complete PP detected at second-trimester ultrasound examination is reported to be between 0.49-5.6% [5,6]. It complicates 0.4% of pregnancies at term [4].

METHODS

A retrospective cohort study conducted using maternal medical records from Aljalaa Maternity and Gynecology hospital from January 2019 to December 2019. A total of 128 enrolled patients diagnosed with placenta previa by ultrasonography. Data from medical records of patients were reviewed. The placenta previa classified as major when the placenta completely or partially covered the internal cervical os, whereas when the placenta just reached the internal os or the margin was less than 3 cm above the internal cervical os, it classified as Minor. The focus was on the association of placental location with feto-maternal outcome.

The reviewed data were further analyzed using SPSS version 23 (IBM Corp., Armonk, NY, USA). Quantitative data expressed as mean \pm standard deviation (SD), while qualitative data expressed as (frequency and percentage). Student t-test used to compare means and Chi square to compare categorical data. $P < 0.05$ used for statistical significance.

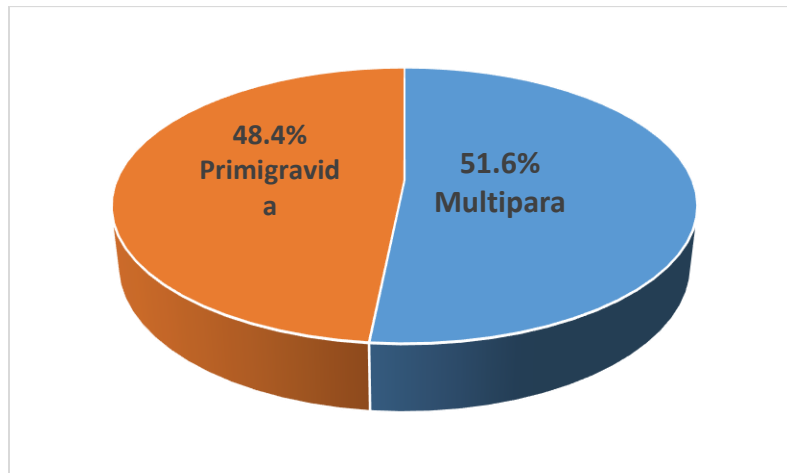
RESULTS

One hundred twenty-eight patients enrolled in this study. The mean age with standard deviation were 28.6 ± 4.5 years (range: 20-38 years) (table 1).

Table 1: age group distribution and type of placenta previa

Maternal age	Minor PP	Major PP	Total	P value
15 – 24 years (%)	12 (23.5%)	18 (23.4%)	30 (23.4%)	0.667
25 – 34 years (%)	36 (70.6%)	51 (66.2%)	87 (68%)	
35 – 44 years (%)	3 (5.9%)	8 (10.4%)	11 (8.6%)	
Total	39.9%	60.1%	128 (100%)	

We found that 77(60.2%) patients had major PP, while 51(39.8%) had minor PP. Approximately, 6 (51.6%) of pregnant women were multipara and 62 patients (48.4%) were primigravida (figure 1).

Figure 1: gravity distribution

Furthermore, 31(61%) of minor PP were primigravida, whereas 46(60%) of major PP were multiparous. There was a significant relationship between parity and grade of placenta previa ($p < 0.05$). The frequency of PP was 1%. Five patients (3.91%) of pregnant women diagnosed accidentally during caesarean section, while 123 patients (96.09%) of pregnant women diagnosed antenatally by ultrasound. The relationship between previous caesarean section (Minor 26/51 patients, major 44/77 patients) with presence of placenta previa in ultrasound scan was no significant ($p > 0.05$).

About 34(66.6%) patients with minor pp and 59 (76.6%) patients of major pp presented with antepartum hemorrhage, whereas the postpartum is documented only in 13.7% of minor pp patients and 7.8% of major pp patients.

Table 2: Distribution of patients according to hemorrhage time

Hemorrhage	Major PP (n=77)	Minor PP (n=51)	P Value
Antepartum	59 (76.6%)	34 (66.6%)	0.020
Postpartum	6 (7.8%)	13 (25.4%)	

In comparison between the major and minor pp, there were no statistical difference between the two groups regarding history of evacuation and curettage, history of caesarean section, and interval between the last caesarean section and current pregnancy (table 3).

Table 3: Group distribution according to previous surgical procedure

Type of previous surgery		Minor PP	Major PP	P value
History of evacuation and curettage		11 (21.6%)	18 (23.4%)	0.233
Previous Cesarean section		26 (51%)	44 (57.1%)	0.233
Previous uterine surgery		26 (51%)	24 (31.2%)	0.025
Interval time between last C/S and current pregnancy	< 18 months	24 (47.1%)	26 (33.8%)	0.143
	>18 months	27 (52.9%)	51 (66.2%)	

Table 4 revealed that two third of the patient (major or minor PP) did not require blood transfusion. On the other hand, 18 patients with minor PP and 27 patients with major PP needed blood transfusion where some of them needed more than 4 units of blood. (Table 4).

Table 4: Group distribution according to history of blood transfusion

History of blood transfusion	Minor PP	Major PP	P Value
Non	33 (64.7%)	49 (64.5%)	0.966
< 4 units blood	6 (11.6%)	8 (10.5%)	
>4 units blood	12 (23.5%)	19 (25%)	

Regarding intraoperative complications: bowel injury occurred in 10 (7.8%) patients, 6 of them with minor PP whereas, 10 patients complicated by urinary bladder injury, and eight (80%) of them with major PP. In addition, five (3.9%) patients (2 minor pp and 3 major pp) end by caesarean hysterectomy. While, five (3 major pp and 2 minor pp) patients were died (4%) (Table 5).

Table 5: Distribution of patients of the abnormal site of the placenta and intra and postoperative complications.

Intra/Postoperative complication	Minor PP	Major PP	Total (128)	P Value
Massive bleeding	14(27.5%)	11(14.3%)	25(19.5%)	0.073
Bowel injury	6(11.8%)	4(5.2%)	10(7.8%)	0.195
Uterine artery ligation	2(3.9%)	3(3.9%)	5(3.9%)	0.994
Urinary bladder injury	2(3.9%)	8(10.4%)	10(7.8%)	0.313
Cesarean hysterectomy	3(5.9%)	2(2.6%)	5(3.6%)	0.387
Disseminated intravascular coagulation	1(2%)	4(5.2%)	5(3.9%)	0.647
ICU admission	2(3.9%)	8(10.4%)	10(7.8%)	0.313
Death	2(3.9%)	3(3.9%)	5(3.9%)	0.944

In addition, there is no significance between gestational age at the time of delivery of patients and degree of placenta previa. ($P > 0.05$) (Table 6).

Table 6. group distribution according to gestational age

Gestational Age	Minor PP	Major PP	P Value
Term	28(54.9%)	34(44.2%)	0.280
Preterm	23(45.1%)	43(55.8%)	

In addition, 63 (49.22%) of pregnant women had history of chronic diseases including diabetes and hypertension, which had no statistically significant relation with grade of placenta Previa. Furthermore, we have found that 42.9% of the patients were O⁺ blood group, 38.3% A⁺ blood group, 38.3% B⁺ blood group, 10.9% B⁻, 0.8% AB⁺ group, 4.7% A⁻ blood group 1.6% O⁻ blood group 4.7% with no significant relationship with grade of placenta Previa.

Regarding neonatal outcome, there were no statistical difference between groups regarding admission to NICU, sex of newborn, birth weight and Apgar score 1 minute and 5 minutes ($p > 0.05$) (table 7).

Table 7. Neonatal outcome according to the types of PP

Outcome	Minor PP	Major PP	P Value
Newborn	Male	45.5%	0.367
	Female	55%	
Admission to NICU (%)	11(21.3%)	21(27.3%)	0.535
Birth weight in grams, means \pm SD	2470 \pm 715.3	2513.1 \pm 763.6	
Apgar score 1 minute \pm SD	5.423 \pm 1.64	5.13 \pm 1.13	
Apgar score 5 minutes \pm SD	7.39 \pm 1.62	8.04 \pm 1.76	

DISCUSSION

The increased risk of postpartum hemorrhage in women with placenta previa, may be explained by the implantation of placenta in a previous scar, which may go deep preventing placental separation. In our study, more than 50% of cohort patients had history of previous uterine surgery (table 3). This may cause severe hemorrhage during and after delivery because the lower segment does not constrict well the maternal blood supply. Furthermore, the women with placenta previa had ten-fold higher odds of Caesarean delivery [7].

Our study showed that more than half of placenta in both grades occurred in (68%) of patients who their age ranged between 25-34 years as shown in (table 1). The placenta Previa minor was found in 39.9% of patients. Sixty one percent of PP minor were primigravida, while 60% of PP major were multiparous and this difference was statistically significant as ($p < 0.05$).

We observe that 24.2% of women with placenta previa had needed more than 4 units of blood transfusion. These findings are similar with previous studies [8]. In this study we found that placenta previa was diagnosed accidentally during caesarean section only in five patients (3.91%). while 123 patients (96.09%) of pregnant women were diagnosed during antenatal care visits. This may be because the ultrasound is a routine examination and this would be useful for early detection of women at risk of placenta previa to enhance prevention of adverse

outcomes. Many studies have shown that complications including obstetric cesarean hysterectomy and severe hemorrhage are among the risks of placenta previa. In addition, surgical injury to the bladder, bowel and ureters may occur [9], We documented that 19.5% complicated with massive hemorrhage, 7.8% with bowel and urinary bladder injury.

Our study showed that five (3.9%) patients (2 patients with minor pp and 3 patients with major pp) ended by caesarean hysterectomy, this is less than what demonstrated in literature, cesarean hysterectomy was required in about 10-11.1% of patients with placenta previa [10,11]. Five (3.9%) patients were died; Fawzia et al. [11] demonstrated that 1.25% is the maternal mortality rate, and in other studies documented that maternal mortality in placenta previa ranges from less than 1% to as high as 5% [12]. In addition, 66 (51.5%) of infants born to women with placenta previa were preterm and 50.7% of them were male. MacGillivray et al. [13] showed an increased ratio of male to female sex at birth among women with placenta previa, particularly in the multiparas. No significance in birth weight between two types of PP. 32/128 (25%) babies were admitted to neonatal intensive care unit (NICU) and this is consistent with literature data [9,14], 65.6% of them born to mother with major PP and they born with Apgar score $< 5.13 \pm 1.13$ at first and 5 minutes. The possible explanation for these could be that the bleeding associated with placenta previa may lead to premature babies, hypoxia and intrauterine growth restriction.

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. Latif L, Iqbal J, Aftab M. Associated risk factors of placenta previa a matched case control study," Pakistan Journal of Medical and Health Sciences, 2015;9(4):1344–1346.
2. Bener A, Saleh N, Yousafzai M. Prevalence and associated risk factors of ante-partum hemorrhage among Arab women in an economically fast-growing society. Nigerian Journal of Clinical Practice, 2012;15(2):185–189.
3. Kodla C. A study of prevalence, causes, risk factors and outcome of severe obstetrics haemorrhage. Journal of Scientific and Innovative Research. 2015;4(2):83–87.
4. Faiz A, Ananth C. Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. The Journal of Maternal-Fetal & Neonatal Medicine. 2003;13(3):175–190.
5. Wexler P, Gottesfeld K. Early diagnosis of placenta previa. Obstet Gynecol. 1979;54(20):231-234.
6. Becker R.H., Vonk R., Mende B.C., Ragosch V., Entezami M. The relevance of placenta location at 20-23 gestational weeks for prediction of placenta previa at delivery: evaluation of 8650 cases. Ultrasound Obstet Gynecol. 2001;17(6):496-501.
7. Hufamo N, Segn H, Alemayehu Y. Incidence, contributing factors and outcomes of antepartum hemorrhage in Jimma University Specialized Hospital, Southwest Ethiopia. Universal Journal of PublicHealth 2015;3(4),153–159.
8. Yamada T, Mori H, Ueki M. Autologous blood transfusion in patients with placenta previa. Acta Obstet Gynecol Scand. 2005;84(3):255-259.
9. Ahmed S, Aitallah A, Abdelghafar H, Alsammani M. Major placenta previa: rate, maternal and neonatal out-comes experience at a tertiary maternity hospital, sohag, Egypt: a prospective study. Journal of clinical and diagnostic research: JCDR. 2015;9(11):QC17-QC19.
10. Ghourab S, Al-Jabari A. Placental migration and mode of delivery in placenta previa: transvaginal sonographic assessment during the third trimester', Annals of Saudi medicine. 2000;20(5/6):382-385.

11. Emjawer F, Ekram A, Ben Sauod B, Eshgaifa M. Pregnancy outcomes of placenta Previa at Benghazi-Libya 2012 – 2013. *Libyan Journal of Science & Technology*. 2019;10(1):35-39.
12. Khirasaria D, Nayak T. A study of complications in cases of placenta previa. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(12):5503-5507.
13. MacGillivray I, Davey D, Isaacs S. Placenta previa and sex ratio at birth. *Br Med J (Clin Res Ed)*. 1986;8;292(6517):371-372.
14. Shruthi Prasanth, Priyanka Mehta, KS Rajeshwari. Maternal and fetal outcome of placenta previa in a tertiary care institute: a prospective two-year study. *Indian Journal of Obstetrics and Gynecology Research* 2016;3(3):274-278.