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Pregnancy outcomes of placenta Previa at Benghazi-Libya 2012 - 2013

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Highlights

- **Posterior placenta constituted more than half of the placenta previa.**
- **More complications recorded in anterior position.**
- **The overall condition of babies was good in both positions.**

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ABSTRACT

Introduction: Placenta Previa (PP) is associated with high demands on health care resources due to maternal and fetal morbidity and mortality. Complications include the potential for severe bleeding and preterm birth, as well as the need for cesarean delivery**. The objective of this study** was to determine maternal & fetal complications of placenta previa according to placental location. A case–series study was conducted on pregnant women diagnosed as placenta previa by ultrasonography and delivered at Al-Jamhoria Hospital, medical records of women were reviewed from medical records retrospectively and placental position as documented in the medical record of the women, placental location.

Results & conclusion: Most of the cases (60%) aged between 31-40 years. The posterior placenta was constituted to 51.2%, while anterior 48.8%, gravity distribution was nearly the same in anterior and posterior. placenta previa was in patients with parity ≥2 in 65 % for both anterior and posterior, the difference was not statistically significant. The majority of cases with placenta previa had no previous history of abortion, 66.7% of anterior position and 73.2% of the posterior position. Placenta accreta and of history abortion were not statistically significant. Hysterectomy is statistical significant p=0.021**.** One patient died due to pulmonary embolism. Regarding the position of babies, all babies in anterior position were stable but those in posterior 2.4% were intra uterine fetal death (IUFD) and 2.4 % were serious. In terms of the condition of the babies, 20 % of them were premature. We recommended further large sample size studies to verify these findings, and to determine whether pregnancies with the anterior or posterior placenta may need more intensive care monitoring for mothers and babies.

1. Introduction

The placenta is an organ that connects the fetus to the uterine wall to allow nutrient uptake. In pregnancy, the placenta is the first organ to formed is a temporary organ connecting the fetus and mother. However, healthy pregnancy outcomes depend on normal function placental trophoblasts. In the earlier stage of pregnancy, proper remodeling of uterine arteries is the physiological conversion of uterine spiral arteries and adequate maternal blood supply to a successful human placenta. Obstetric complications of Placenta previa is affecting nearly 0.4-0.5% of all labours (Abuod *et al.*, 2017) and (Kassem and Alzahrani, 2013)**,** the number of PP and its complications, including placenta accrete (PA), will increase (Oyelese and Smulian, 2006)**.**

The risk factors for placenta previa include increasing parity, maternal age, previous, multiple gestations, fetus abortion, history of cesarean section delivery, intrauterine surgery and male gender (Collier *et al.*, 2006; Faiz and Ananth, 2003). The other associated risk factors were male gender fetus abortion and smoking.

BY transvaginal ultrasonography the diagnosis for placenta previa, women with a complete placenta previa usually delivered by cesarean. Furthermore, women who their age was below 20 or more than 35 years are at increased risk. Moreover, if women had multiple pregnancies due to a big placenta or erythroblastosis are at higher risk as well (Simon *et al.*, 2005). Lastly, smoking and consuming alcohol during pregnancy are also risk factors of PP (Arulkumaran and Warre, 2009; Aliyu *et al.*, 2011). By prenatal diagnosis by imaging followed by planning of peripartum management by a professional team, may help decrease the complications.

1.1 Grades

Placenta previa is classified into four degrees:

Grade I: Placenta extends to the lower portion of the uterus but does not reach the cervix

Grade II: Lower edge of placenta reaches cervix but does not cover it.

Grade III: Placenta partially covers cervix.

Grade IV: Placenta covers internal Os completely (Arulkumaran and Warre, 2009).

1.2 Clinical features

Painless, vaginal bleeding. During delivery, women may also present a failure of engagement of fetal head during delivery. In

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simple degrees of PP normal delivery is possible. It was reported that by the clinical state of mother and ultrasound findings of the fetus, the type of delivery can be determined (Collier *et al.*, 2006; Kayem *et al.*, 2004). Consultant anesthetists and obstetricians should be present in the delivery room when normal delivery is attempted. Postpartum hemorrhage is large which increases maternal complications (Zlatnik *et al.*, 2007) and (Oya *et al.*, 2005). Furthermore, Intra uterine growth retardation. (IUGR), premature delivery and death may occur (Simon *et al.*, 2005). The study aimed to determine fetal and maternal complications of placenta previa according to placental position.

2. Patients and methods

Observational descriptive case–series study was conducted in Al Jamhoria Hospital at Benghazi city during a one-year period from March 2012 to April 2013. A convenient sample of 80 patients who all diagnosed as placenta previa by ultrasonography and delivered at Al Jamhoria Hospital was included in the study. The data from medical records in the statistical department in the hospital of patients were reviewed. The patients were classified according to the location of the placenta into two groups: the first group include patients who had placenta in the anterior part of the uterus (Anterior group) and the second group placenta was located on the posterior portion (Posterior group). The main focus was on the association of placental location with foeto-maternal outcome.

2.1. Data analysis& statistical methods

Data from medical records in the statistical department in the hospital was taken. Data include age, gravity parity, present complain, past obstetric history including abortion and cesarean section (C/S) history of bleeding and if patients received a blood transfusion. Also, if there were post-operative complications or no complication. Finally, maternal outcome and the condition of the babies' fetal maturity, if it was stable, serious or Intra uterine fetal death (IUFD), were recorded. The data analyzed in tables and figures by Statistical Program Social Package (SPSS version 18). Some statistical parameters such as mean, standard deviation were obtained and for categorical variables, the chi-square test was applied for the test of association. The results considered statistically significant if the P-value of less than 0 .05.

3. Results

Out of 80 women delivered with abnormal placenta position, 61.3% of babies were males while 38.7% were females, 20% of babies were premature babies.

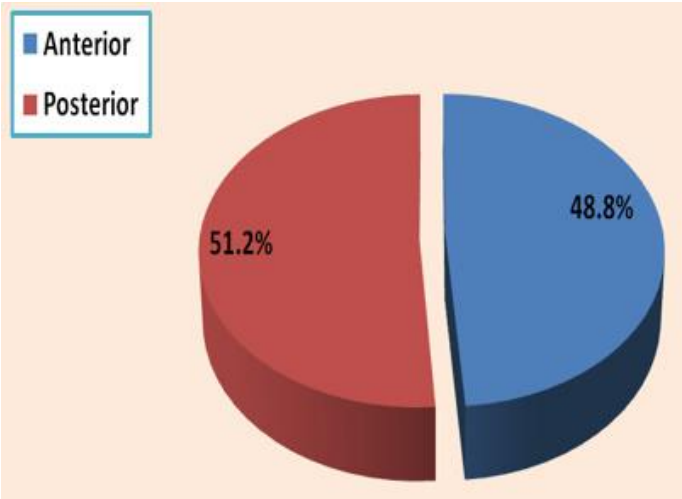

Fig. 1. Distribution of patients according to the site of the placenta in Al-Jamhoria Hospital at Benghazi.

Table 1.

Summary of demographic and clinical characteristics, details of 80 women with an abnormal placental location in Al-Jamhoria Hospital at Benghazi.

Characteristic/Parameters	Details		No.	%
Age of patients	≤ 20 Years		1	1.3
	21–30 Years		24	30
	31-40 Years		48	60
	≥40 Years		7	8.8
Gravidity	Primi gravida		7	8.8
	2-5		45	56.2
	5≥		28	35
Present complain	Bleeding		45	56.2
	Referred as case of placenta previa		26	32.5
	Abdominal pain		6	7.6
	Decreased liquor Vaginal discharge		3	4
H/o Caesarean section C/s	Yes	Once	22	27.5
		≥ 2	6	7.5
	No		52	65
Placenta accrete	Yes		6	7.5
H/o abortion	Yes		24	30

1. H/o C/s X^2 = 3.311 . df= 2 p= 0.191 (Not significant).
2. H/o Placenta accrete X^2 =3.10. df= 1 p=0. 078 (Not significant).
3. H/o abortion X^2= 0.414. df= 2 p= 0.813 (Not significant).

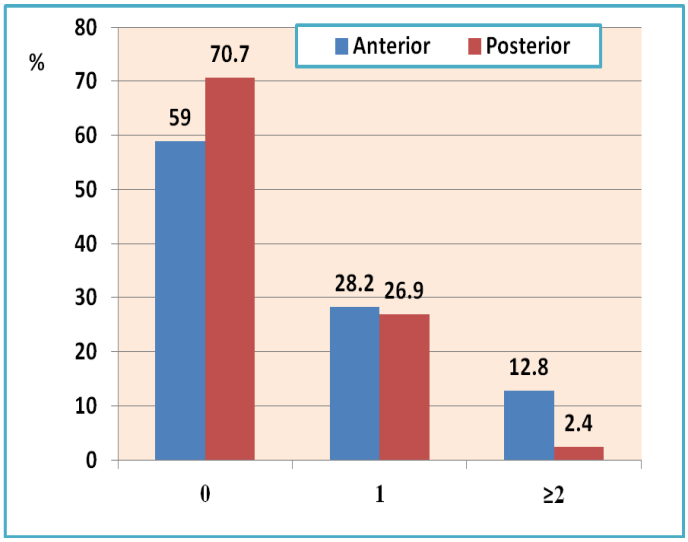

Fig. 2. Distribution of patients according to the site of placenta and history of cesarean section (C/S).

Table 2.

Relationship between placental location and maternal characteristics.

Characteristics	Anterior	Posterior
Gravidity (Mean±SD)	4.7±2.5	5.2±5.9
Parity (Mean±SD)	2.97±1.99	2.5±2.1
Abortion (Mean±SD)	2.2±2.3	1.4±0.7
Maternal age (Mean±SD)	33.9±4.7	33.8±5.3

Mean abortion of anterior 2.2±2.3 & posterior was 1.4±.0.7 p-value 0.033 (Significant)

Table 3.

Distribution of patients according to the site of placenta and hysterectomy.

Hysterectomy	Anterior		Posterior	
	No	%	No.	%
Yes	7	17.9	1	2.4
No	32	82.1	40	100

χ^2=5.342; df=1; p= 0.021 (Significant).

Table 4.

Distribution of patients' placenta previa and history of blood transfusion and placenta accrete.

Characteristics		Site of placenta				χ^2 Test
		Anterior		Posterior		
		No.	%	No.	%	
History of blood transfusion	*Yes	24	61.5	18	43.9	χ^2=2.493; df=1; p= 0.114 (Not significant).
	No	15	38.5	23	56.1	
Placenta accrete	Yes	5	83.3	1	16.7	χ^2=3.10; df=1; p= 0. 078 (Not significant).-
	No	43	45.9	40	54.1	

* 5 Units of blood received 70.8 % &6 – 10 Units of blood received 29.2 % of patients. Disseminated intravascular coagulation (DIC) in 49.9% only in anterior and not present in posterior.

Table 5.

Distribution of patients of the abnormal site of the placenta and postoperative complication.

Post-operative complication	Patients	
	No.	%
No complication	62	85
Hysterectomy	2	2.5
Incontinence fistula	1	1.3
Pulmonary embolism	1	1.3
Anemia	5	6.1
Bladder injury	2	2.5
Thrombocytopenia	1	1.3

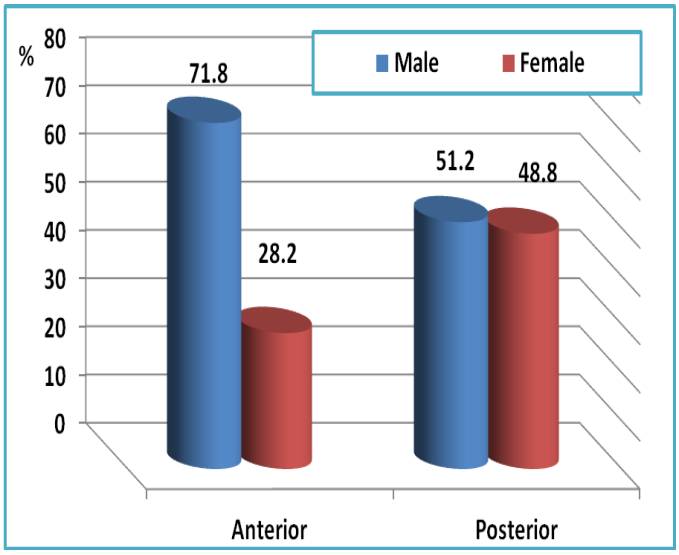

Fig.3. Distribution of patients according to the site of the placenta and sex of the babies.

Table 6.

Distribution of patients according to the site of the placenta and condition of the babies.

Condition of the babies	Site of placenta				Total	
	Anterior		Posterior			
	No.	%	No.	%	No.	%
Stable	39	100	39	95.2	78	97.4
IUD*	0	0	1	2.4	1	1.3
Serious	0	0	1	2.4	1	1.3
Total	39	100	41	100	80	100

*(IUFD) Intra uterine fetal death

4. Discussion

The study was conducted on 80 placenta previa patients. According to Table 1, more than half of placenta in both positions occurred in (60%) of patients who their age ranged between 31 and 40 years. As shown in (Fig. 1), the anterior placenta was found in 48.8% of patients, while posterior was in 51.2%. Table 2 gives the mean age of women with anterior position which was 33.9±4.7, and 33.8±5.3 for posterior position and this difference was not statistically significant as p value=0.931, which is more than 0.05, these results are found to be similar to a study in Saudi Arabia which also recorded the mean parity of anterior position was 3.54±1.6, and for posterior position was 3.8±2.1, the p-value was 0.54 (Zia, 2013). Gravidity between 2–5 was constituted to more than half in both position anterior and posterior as recorded in Table 2. Many factors such as multiparty, old age, previous cesarean section are usually associated with placenta previa. They are considered as risk factors of excessive bleeding and peripartum, hysterectomy, even if placenta previa does not exist (Kayem *et al*., 2004; Choi *et al*., 2008 and Hasegawa *et al*., 2009).

In this study, the commonest types of present complain were bleeding. The vast majority of placenta accrete was in anterior position 83.3% and only 16.7% in the posterior position, as shown in Table 4. Another research study showed that the incidences of placental accreta and hysterectomy were much more common in the anterior group and no significant differences were found in placental abruption, emergency cesarean section and maternal mortality (Jang *et al*., 2011). It was found that the anterior group might have incidences of placental accreta more than the posterior group (66.7% vs. 0%) and this difference was statically significant p=0.001 (Aboud., *et al*.,2017). According to Fig. 3, H/o of C/s was negative in 59% of anterior position and 70.7% of the posterior position. While 28.2% had a history of one previous cesarean section C/S in an anterior position and 26.9% in the posterior position. In addition to that, 12.8% of anterior position had ≥2 C/S and 2.4% in the posterior position. However, these differences between the two positions were not statistically significant as the p-value was 0.191. In a similar study, there were more cases significant in the anterior group and have a history of previous cesarean section >2 (Jang *et al*., 2011).

Hasegawa and his colleagues in Tokyo, Japan reported that regardless of whether placental adherence is present or not advanced maternal ag**e,** previous cesarean section, and presence of sponge-like findings in the cervix are consider as risk factors for massive bleeding which occur during cesarean section in cases of placenta previa. The risk factors for placental adherence include the placental location on the scar of a previous cesarean section and lack of a clear zone. Therefore these findings are present preoperatively, management should be tailored accordingly (Hasegawa *et al*., 2009).

Our results show that ten percent of patients with placenta previa ended by hysterectomy. According to Table 3, was 17.9% were in an anterior position and only 2.4% was in the posterior position, and this difference was statistically significant as p value=0.021. In comparing with the previous study, cesarean hysterectomy was required in 11.1%of patients with PP (Ghourab and Aljabari, 2000).

Our results were similar to those obtained from a study carried out in Korea in which there was a statistical difference between the two groups as it was more common in anterior position (Jang *et al.*, 2011). In addition, according to Jang and his colleagues; sonographic determination of the placenta position located beneath the uterine incision considered important to predict maternal outcomes in placenta previa patients so, close attention should be taken for massive hemorrhage in these cases (Jang *et al.*, 2011).

Furthermore, in consistency with a study carried out in Tripoli, that reported that the hysterectomy was much more common in the anterior group than the posterior group 0% and 40.7% respectively) and this difference was statistically significant as p=0.001 (Aboud *et al.*, 2017). In the present study, ten percent of patients with placenta previa ended by hysterectomy. As shown in Table 3, hysterectomy was performed in 17.9% of patients with anterior position and only in 2.4% of patients with the posterior position, the p-value was calculated and the difference was statistically significant (p value=0.021). In another study, cesarean hysterectomy was required in 11.1% of patients with placenta previa (Ghourab and Aljabari, 2000).

Similarly, the results of Jang and his colleagues' study confirmed our results as they have found that there was a statistical difference between the two groups where it was common in the anterior position group. In his study that was carried out in USA, Jang *et al.* (2011) reprted that placenta previa and placenta accreta are important causes of bleeding in the second half of pregnancy (Jang *et al.*, 2011). Moreover, women who known to have placenta accreta should be delivered by cesarean, and no method or way should be made to separate the placenta at the time of delivery (Jang *et al.*, 2011). Furthermore, the vast majority of women with significant degrees of placenta accreta will need a hysterectomy. Although successful management has been described, however, currently there are not enough data to recommend this approach to management routinely (Oyelese and Smulian, 2006). Placenta accreta was defined by clinical criteria at the time of delivery and by pathological findings (Esakoff *et al.*, 2011). A similar study regarding the diagnosis of placenta accreta reported that, although it is not a perfect method, ultrasound appears to be an inexpensive and powerful testing modality in the diagnosis of placenta accreta (Esakoff *et al.*, 2011).

In the current study (Table 4) the results showed that the placenta accrete in five of the anterior group represents 83.3 % and one patient in the posterior group which represents 16.7% (Not significant). Moreover, When compared the present results with that of a study carried out in Taif-Saudi Arabia 2013, showed that there is an increased risk of maternal complications and placenta accreta should be excluded in every case of placenta previa, especially in those with risk factors such as advanced maternal age, high parity, and advanced maternal age and previous uterine surgery. Furthermore, in the surgery for placenta accreta second opinion should be taken. The elective delivery of patients with placenta accreta at 36 weeks instead of 34 weeks should be considered unless it is maternal (Kassem and Alzahrni, 2013). In addition, to that, these results were consistent with another study that used ultrasonography to diagnose placenta accreta clinically at delivery and/or by pathologic examination (Osman *et al.*, 2017).

It was found that more than half of the patients with placenta previa had a history of blood transfusion**,** 61.5% were of an anterior type and 43.9% were of posterior type (Table 4). Patients with anterior position receive 1-5 unite of blood in 70.8%, of patients and 29.2% of them received 6-10 unite of blood, while in the posterior position most of them (94.4%) received 1–5 units of blood and 5.6 % only received 6-10 units of blood. In another study conducted by Zia, revealed that the anterior group had more blood loss and more blood transfusion than posterior group (Zia, 2013).

In addition, this study revealed that the majority of patients have no post-operative complications in both anterior and posterior positions (Table 5). Hysterectomy was recorded in 2.5% of patients, while anemia was in 6.1% and bladder injury was recorded in % 2.5 of women. Moreover, incontinence fistula, pulmonary embolism, thrombocytopenia, and bladder injury were recorded in 1.3% of the patient for each. This is approximately consistent with the study reported that women had maternal morbidity and complications as well as emergency postpartum hysterectomy, which was explained due to placenta accreta (Aboud *et al.*, 2017).

Mortality in this study was one Patient due to pulmonary embolism. A recent study has shown that complications including obstetrics hysterectomy and massive hemorrhage requiring blood transfusion are among the risks of placenta previa. In addition, surgical injury to the bladder, viscera, and ureters and renal failure may occur (Ahmed *et al.*, 2015). The results demonstrated in Fig. 3 the majority were male babies were in anterior placenta previa. While in posterior pp, 51.2% of the male and 48.8 % were females which were not statistically significant.

The majority of babies 92.2% were single, there were twins and one triple case, regarding the condition of babies (Table 6), and all babies in anterior position were stable. About 2.4% of babies in posterior position were IUFD and 2.4% were in serious condition. In another study, the IUD represented 1.5% in an anterior position and there was no IUFD in a posterior position (Davood *et al.*, 2008). In the same study, it was stated that the prematurity cases were recorded in 23.1% of anterior position and 17.1% in the posterior position, however, this difference was not statistically significant as p-value=0.502. In comparing with Abuod and her colleagues' study, the prematurity of the fetus was not different between the anterior and posterior group with dense of term delivery more than the prematurity delivery with 77.8% for the anterior and 75.5% for the posterior group (Abuod *et al.*, 2017).

5. Conclusion

Based on the findings, we suggest that the posterior placenta constituted more than half of the placenta previa. Therefore, the placental location may be an important determinant of pregnancy outcome. Sonographic considered important in the determination of the placenta position. Hysterectomy, placenta accrete and blood transfusion were almost recorded more in an anterior position, Overall outcome of babies was good in both anterior and posterior position, while intrauterine fetal death and serious condition were recorded only in the posterior position.

6. Recommendation

1. Health education for the mothers during the prenatal visit is very important
2. Prenatal diagnosis by imaging, followed by planning of peripartum management by professional team (Doctors, Midwives, and Nurses) who should have full knowledge of assessment and management of placenta previa that may be helpful to reduce the complications.
3. Adequate maternal care to reduce the complications and to improve maternal and fetal outcomes.
4. The availability of ultra-sonographic machines in health institutions to asses and evaluate the pregnancy and placenta position.
5. Further studies with large samples are essential to verify these findings and to decide whether pregnancies with the anterior placenta may benefit from more intensive monitoring.

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