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Original article

Risk Factors for Maternal and Fetal Outcome in Placenta Accrete Spectrum Associated with Placenta Previa in Libya

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ABSTRACT

Background and aims. *Placenta accreta spectrum (PAS) is a pathologic invasion of the placental trophoblasts to the myometrium and beyond and is associated with severe maternal morbidity. This study was aimed to determine the risk factors and maternal and fetal outcome of cases with PAS associated with placenta previa in Libyan Maternity Hospital.* ***Methods****. We performed a cross section study of pregnant women with PAS associated with placenta previa at department of Obstetrics and Gynecology in Aljala Maternity Hospital in Tripoli, Libya during the period of 2021. In these cases, the earlier diagnosis was recognized by an ultrasonographic. The study included 143 pregnant women with PAS associated with placenta previa. Data were collected by specific and validated questionnaires. All pregnant women diagnosed with placenta accrete whose age ranged between ⩾ 18 years were included. Women with others diseases were excluded from the study.* ***Results****. A total 143 pregnant women diagnosed with placenta accreta whose age ranged between 18 to 45 years (mean age group was 33.56 ± 5.8 years). All the pregnant women had risk fac¬tors for abnormally invasive placenta such as previous placenta previa, cesarean delivery, parity and repeat miscarriage. 63.0% of women were delivered by emergency cesarean section, mean of gestational age was 34.07 weeks. In the management of bleeding, 70.6% were received blood transfusion, 15.4% were treated by hysterectomy and 84.6% were received conservative treatment, such as bilateral uterine artery ligation, balloon tamponade. Internal hypogastric artery ligation and avoiding of bleeding and infection. 60.1% were admitted in the medical intensive care units for deterioration of their health condition with a mean duration stay at ICU of 4.45 ± 4.5 day with no death reported between them. Regarding fetal outcome, preterm delivery was 55.2% from 33 - 34 weeks and the mean birth weight was 2.57 ± 0.55 gm, NICU admission was 50 (35.0%). There is 10 neonatal death reported (6.9%).* ***Conclusion****. PAS is a harmful event in Libyan women's pregnancy and leads to a high maternal morbidity with adverse neonatal outcomes. The critical risk indicators for PAS are women age, previous LSCS, placenta previa, parity, repeat miscarriage. Thus, early recognition of the risk factors and planned management improve maternal and fetal outcomes in Libya.*

Keywords: Placenta Accrete Spectrum, Maternal and Fetal Outcome, Libya, Risk Factors.

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INTRODUCTION

Placenta accreta spectrum (PAS) refers to the abnormal attachment of placental trophoblasts to the uterine myometrium that can further be divided into placenta accreta, placenta increta and placenta perforata based on the depth of invasion of the myometrium [1,2]. PAS is primarily caused by uterine lesions, placenta previa identified before delivery, scarred uterus, advanced maternal age and assisted reproductive technology [3,4]. The prevalence of placenta accreta has raised from one in 30 000 pregnancies in the 1960s to one in 533 pregnancies in the 2 000s. At present, frequency has increased from one per 2, 500 to one per 110 deliveries [5–9].

One of the most hazardous pregnancy-related diseases is PAS which can result in excessive bleeding that can lead to multiple organ failure, disseminated intravascular coagulation and the need for an intensive care unit, hysterectomy and even death. It serves as the initial reason for peripartum and caesarean-associated hysterectomy as well as hysterectomy [10]. In addition, neonatal morbidity and mortality result from preterm birth. Furthermore, maternal hemorrhage can result in decreased fetal oxygenation [10].

Placenta accreta spectrum is best managed when it has been diagnosed antenatally. Many steps can be undertaken to minimize risks. The American College of Obstetricians and Gynecologists (ACOG) has recommended delivery between 34 0/7 - 35 6/7 weeks of gestation via cesarean hysterectomy to optimize neonatal maturity and minimize the risk of maternal bleeding [11]. Thus, the aim of the current study was to identify the risk factors and fetomaternal pregnancy outcomes with placenta accrete in Libyan women.

METHODS

A cross-sectional observational study of 143 Libyan pregnant women with PSA and placenta previa identified and treated at the Department of Obstetrics and Gynecology in Aljala Maternity Hospital in Tripoli, Libya during the period of 2021 were included. All the women presented or referred for suspected placenta accrete were included. The data were collected from the pregnant women after taken a verbal consent in the validated questionnaire which included age, gestational age, parity, number of miscarriage, number of pervious and type of cesarean section, history of abnormal presentation of placenta in pregnancy, feto maternal outcome. The diagnosis of suspected cases of PSA performed by transvaginal ultrasound were obstetricians experienced in abnormal adherent placenta. This study was ethically approved by an ethics committee of Aljalah Maternity Hospital (012/2020) and consent from each woman was taken.

Definition

Placenta accreta spectrum refers to the abnormal attachment of placental trophoblasts to the uterine myometrium that can be further divided into placenta accreta, placenta increta and placenta percreta based on the depth of invasion of the myometrium [1, 2].

Data management

All data were coded and analyzed by using SPSS (Statistical Package for the Social Sciences) version 21 with measures of frequency, percentage, mean and standard deviation and graph presentations.

RESULTS

During the study period, there were 143 deliveries were diagnosed with placenta accreta spectrum which provide an incidence of 01.9% at Obstetrics and Gynecology in Aljala Maternity Hospital which the largest hospital in Tripoli capital of Libya. Their age was ranged between 18 years to 45 years with a mean of 33.56 ± 5.8 years. Most of the patients in the study was in the group of 31 - 40 years old (53.8%) as shown in Figure 1.

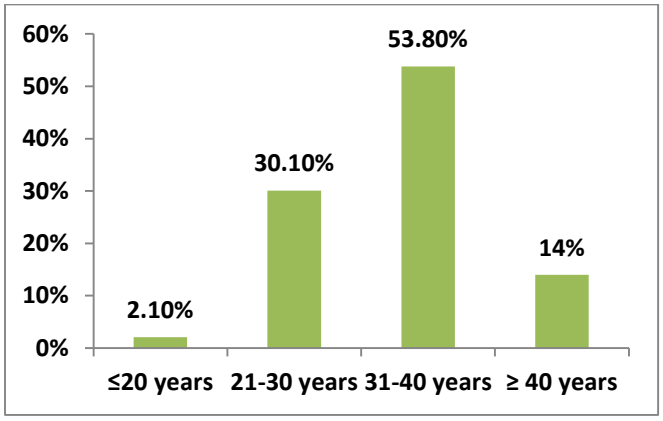

Fig. 1: Age mother with placenta accerta

Out of them, 89 patients were diagnosed as accerta (62.2%) as presented in Figure 2. 140 patients were diagnosed antenatally by transvaginal Doppler (97.9%) and only three patients presented in the labor room with an antepartum hemorrhage (02.1%). In Table 1, the risk factors for PAS were shown. 82 patients had 2 - 4 para (57.3%), more than the half of the patients had pervious miscarriage (80, 55.9%) of 2 - 3 times miscarriage. Regarding the prior experience with abnormal placentation in previous pregnancy, 112 patients had experienced with it (78.3%).

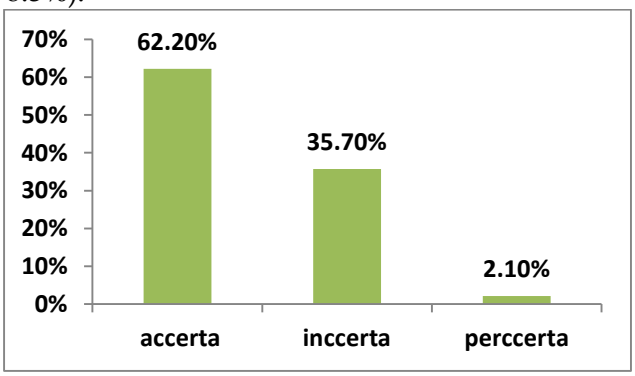

Fig. 2: types of abnormal placentation

Table 1: Obstetrics history of patients with abnormal placenta

Variable	Frequency	Percentage
Parity		
Para one	15	10.5
2 - 4 para	82	57.3
5 - 7 parity	46	32.2
Number of pervious miscarriage		
Once times	61	42.7
2 - 3 times	80	55.9
≥ 4 times	2	1.4
Abnormal placentation in previous pregnancy		
Yes	112	78.3
No	31	21.7

Previous LSCS was the greatest critical risk factor for PAS in this study. 41 patients (28.7%) had previous two LSCS, 27.3% had three times as shown in Figure 3.

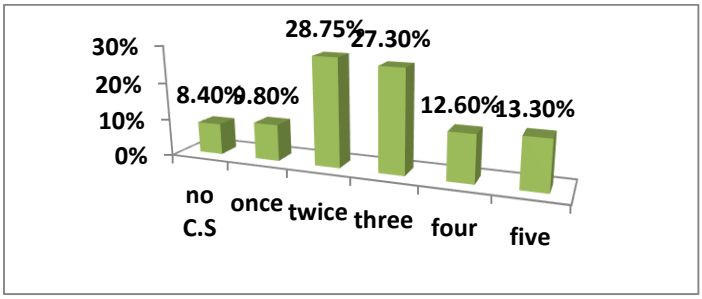

Fig. 3: Number of previous cesarean section delivery

Regarding fetomaternal outcome (Table 2), the mean of gestational age of patients was 34.07 ± 3.02 weeks. The data revealed that 131 of the patients they complaining of bleeding in late pregnancy (91.6%) and 101 of them receiving blood transfusion (70.6%), 24 patients receiving 3 - 4 unit (16.8%) as shown in Figure 4. Moreover, with regard to the mode of delivery of abnormal placenta, 90 patient's delivery by emergency cesarean section (63.0%) and 53 by elective cesarean section delivery (37.0%). In the management of bleeding, 22 of the patients, treated by hysterectomy (15.4%) and 121 of the patients with PAS (84.6%) receiving conservative treatment such as bilateral uterine artery ligation, balloon tamponade and internal hypogastric artery ligation with care to avoid of bleeding and infection. In the same time, 86 of patients (60.1%) admitted in the medical intensive care unit for deterioration their health condition, with a mean duration stay at ICU of 4.45 ± 4.55 day, more than half of the patients stay from 1 - 5 days (93, 65%) but no death reported between them. Regarding fetal outcome, the gestational age of patients was 34.07 ± 3.0 weeks, 79 of the patients (55.2%) from 33 - 34 gestational age

and the mean birth weight was 2.57 ± 0.55 gram. The majority of the neonate was 81 (56.6 %), in the birth weight group 2500 - 3900 gram. NICU admission was 50 (35.0%) and only 10 neonatal death reported (06.9%).

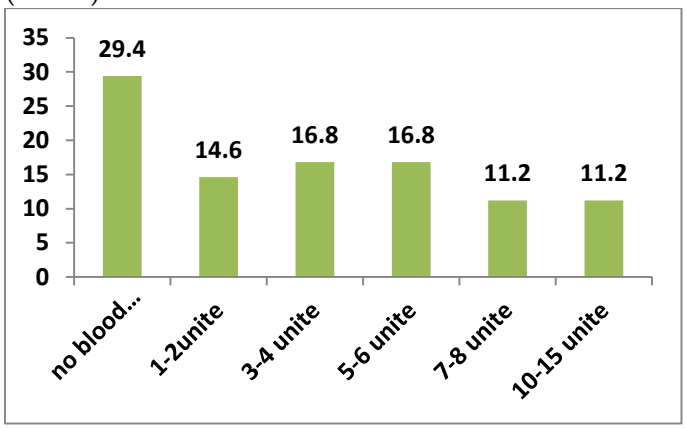

Fig. 4. Number of blood unit receiving by women

Table 2. Fetomaternal outcome of women with abnormal placentation

Variable	Frequency	Percentage
Gestational age		
< 33 weeks	06	04.2
33 - 34 weeks	79	55.2
> 34 weeks	58	40.6
Bleeding in late pregnancy		
Yes	131	91.6
No	12	8.4
Outcome of mother		
ICU admission	86	60.1
Good condition	57	39.9
Duration of stay at ICU		
1 - 5 days	93	65%
6 - 10	38	26.6%
≥ 11 days	12	8.4%
Surgical management		
Conservative treatment	121	84.6
Hysterectomy	22	15.4
No death	00	00
Fetal outcome		
Birth weight (gm)		
< 1500	03	02.1
1500 - 2499	59	41.3
2500 - 3900	81	56.6
Fetal condition		
NICU admission		
Yes	50	35
No	93	65
Alive	133	93.1
Death	10	6.9

DISCUSSION

Previous study population has shown dramatically increase over the last three decades with the rise in cesarean section rate. Indeed, depending on the description of placenta accreta utilized and the research population, the incidence of morbidly adherent placenta varies from 0.001 to 0.9 percent of deliveries and has sharply increased over the last 30 years, paralleling the rise in cesarean section rate [12].

The term PAS was defined by three major societies, the American College of Obstetricians and Gynecologists (ACOG) [11]. The International Federation of Gynecology and Obstetrics (FIGO) [2] the Royal College of Obstetricians and Gynecologists (RCOG) [13]. The current study revealed an incidence of PAS of 1.9 %. The most important risk factors for development of PAS is placenta previa after a prior cesarean delivery/section, maternal age was 33 years, parit, history of recurrent miscarriage, abnormal placentation and LSCS. These findings are in line with Sharma et al. [14] and Fitzpatrick et al. [15]. In addition, a previous study in 2017 described that older maternal age, past cesarean section, placenta previa were independent risk indicators for PAS disorders [16].

Ultrasound can assess the topography of the placental invasion, the degree of vascularization in the lower uterine segment and the depth of the area of abnormal adhesion, as well as, the invasion of other structures determining factors of maternal morbidity [18]. The sensitivity and specificity of ultrasonography shown to be highly. Individual studies of ultrasound diagnosis of accreta report show large range of sensitivities and specificities [18]. Moreover, a systemic review and meta-analysis of ultrasound illustrated of 90.8% and a specificity of 96.9%.

Important factors in the diagnosis are the presence of lacunae and the loss of hypoechoic retroplacental space [19]. This study illustrated that the majority of patients diagnosed by transvaginal ultrasound, before labor and only three patients presented with severe bleeding in labor room and diagnosed intraoperative as in the previous study by Sharma et al. [14]. All the cases diagnosed by ultrasound. In the current study the mean gestational age is 34.4 ± 0.7 weeks and the most of women presented with bleeding in late pregnancy and receiving blood transfusion from 2 - 6 unites. The surgical delivery was done in all the cases as emergency cesarean section for intense abdominal pain and severe bleeding. After diagnosed, less than half under went to elective cesarean section and no vaginal delivery reported between them. The most of women treated by conservative management with a close observation of the risks of bleeding and infection. Such a procedure was done to avoid hysterectomy as internal iliac (hypogastric artery ligation, bilateral uterine artery ligation, with or without bakri balloon and B lynch suture and failed cases twenty-two patient's hysterectomy was done as in the study reported to save mother life. Most of the patients admitted to intensive care unit. For their deterioration health condition and complication of bleeding. With a mean duration of stay at ICU of 4.45 days, and no mortality reported between the women.

The early presentation and experience of the team, and good management may have related to this good results. In the opposite to this finding, in the study by Sharma et al. [14], the majority of patients (32) underwent a hysterectomy and ICU admission, blood transfusion, bladder repair was higher in this study. The mortality rate was 07.6% higher than our results due to series complication of bleeding. Furthermore, the hysterectomy is gold standard in management. According to previous studies [20 – 23], women with PAS delivered before term due to the bleeding.

In this study, the babies born to these women were often preterm, mean gestational age was 34.04 weeks and had accepted birth weight with mean of 2.57 gm, admission to the ICU of 35.0% and ten neonates (06.9%) die due to a series complication. On the other hand, Sharma and others study [14] showed that babies born to these women were often preterm and had low birth weight as well as had low APGAR scores which is in consistent with Desai et al. [23].

CONCLUSION

PAS is a devastating event in Libyan women's pregnancy. A high maternal morbidity and adverse neonatal outcome were observed. The important risk indicators for PAS are mother age previous LSCS, placenta previa, parity and repeated miscarriage. Thus, early identification of risk factors and a strategic management improve maternal and fetal outcomes in Libya.

Conflict of Interest

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

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