

Outcome of Patients with Placenta Accreta at El Shatby Maternity University Hospital

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Abstract

Objective: The aim of this study was to determine the incidence, risk factors, and outcomes of management of patients with placenta accreta. Background Placenta accreta occurs when the placental implantation is abnormal. The marked increase in incidence has been attributed to the increasing prevalence of cesarean delivery in recent years. The most common theory is defective decidualization. The most important risk factor for placenta accreta is placenta previa after a prior cesarean delivery. The first clinical manifestation of placenta accreta is usually profuse, life-threatening hemorrhage. The recommended management of suspected placenta accreta is planned preterm cesarean hysterectomy with the placenta left *in situ*. **Patients and methods:** It's a study of all cases of placenta accreta at El-Shatby Maternity University Hospital starting from 1/4/2016 till 1/10/2016. Selection of the cases will only be dependent upon their pregnancy gestational age above 28 weeks of gestation. **Results:** The incidence of placenta accreta was 1/75 cesarean deliveries. The ultrasonography and doppler had a false negative rate of 54.6% and a sensitivity of 45.2% in diagnosis of placenta accreta. The rate of blood transfusion was 79.6%. Uterine preserving procedures performed in 66%. Cesarean hysterectomy performed in 34%. Intensive care unit admission occurred in 27.3%. The mean gestational age at delivery was 33.8 ± 4.6 weeks' gestation. 31.8% admitted to the neonatal intensive care unit. **Conclusion:** The incidence of placenta accreta increased due to the increasing rate of cesarean deliveries, prenatal diagnosis of placenta accreta is paramount, as most women are asymptomatic. Prenatal diagnosis allows time for a multidisciplinary team to make delivery plans, which will help decrease surgical complications.

Keywords

Pregnancy, Cesarean Deliveries, Placenta Accreta, Postpartum Haemorrhage, Blood Transfusion, Hysterectomy

1. Introduction

Placenta accreta occurs when the decidua basalis that normally separates the anchoring villi and the myometrium is missing [1]. The incidence of placenta accreta appears to be increasing until 1980s [2]. For the period of 1982-2002, researchers have reported the incidence of placenta accreta as 1 in 533 deliveries [3]. In 2006, the incidence increased to be 1 in 210 deliveries [4]. The pathogenesis of placenta accreta is not known with certainty. The most common theory is defective decidualization (thin, poorly formed, or absent decidua) related to previous surgery or to anatomical factors (endocervix, lower uterine 2 segment, endosalpinx, uterine anomaly) allows the placenta to attach directly to the myometrium [5] [6]. The most important risk factor for placenta accreta is placenta previa after a prior cesarean delivery. Other risk factors for placenta accreta include: uterine instrumentation, intrauterine scarring, smoking, maternal age over 35, grand multiparity, and recurrent miscarriage [7] [8]. The first clinical manifestation of placenta accreta is usually profuse, life-threatening hemorrhage that occurs at the time of attempted manual placental separation. Poorly controlled hemorrhage related to placenta accreta, increta and percreta is the indication for one to two thirds of peripartum hysterectomies [9], disseminated intravascular coagulopathy, adult respiratory distress syndrome, renal failure, unplanned surgery, and death [10]. The diagnosis is made by (2D) gray scale ultrasound, three dimensional ultrasound, color doppler ultrasound and magnetic resonance imaging [11]. The timing of delivery in cases of suspected placenta accreta is preterm elective CS at 35 - 36 weeks [12]. Generally, the recommended management of suspected placenta accreta is planned preterm cesarean hysterectomy with the placenta left in situ because removal of the placenta is associated with significant hemorrhagic morbidity [2]. Women who have a strong desire for future fertility uterine sparing approaches may be used as methotrexate, local resection of placental implantation site, systematic pelvic devascularization, uterine tamponade, and interventional radiology with internal iliac artery ligation, but these approaches may be complicated by sepsis, hemorrhage [13], and hysterectomy can become necessary.

2. Patients and Methods

Inclusion Criteria

- Patients with ultrasound signs suggestive of placenta accrete (vascular lacunae, myometrial thinning, and loss of the retroplacental “clear space” and interruption of bladder line).
- Patients with previous cesarean section with placenta implanted over the scar.
- MRI signs of placenta accrete (uterine bulging and loss of normal uterine contour, on T2 weighted MR images, presence of hyperintense mass which may be heterogeneous, focal thinning of the myometrium and interruption of the junctional zone).

Patients with average gestational age below 28 weeks will be excluded. All cases will be subjected to thorough history taking, complete general examination, and investigations. Documentation of interventions performed, maternal outcome, and fetal outcome.

Ultrasound scanners with linear and sectorial 3.5 and 5 MHz transducers and also 5 and 7 MHz transvaginal transducers were employed, by GE Voluson 730 Expert and Voluson E8. Ultrasound results were retrospectively analyzed and compared with surgical findings. The degree of placental penetration and its specific topography were established in the operating room according to clinical and anatomical criteria.

3. Results

The incidence of placenta accrete was 1 in 75 cesarean deliveries (**Table 1, Figure 1**). The mean age of included women with placenta previa was 26.7 ± 4.9 years (range: 21 - 32 years). The mean gestational age at delivery was 33.8 ± 4.6 weeks' gestation (range: 29 - 39 weeks' gestation) (**Table 2**). The median parity was 3 (range: 1 - 5; interquartile range: 2 - 4). All the included cases had at least one previous CS (**Table 3**).

Table 1. Incidence of morbidly-adherent placenta previa cases in relation to total no. of cesarean deliveries during the studied period (n = 44).

	No.	%
CS	3300	100.0
Placenta Accreta	44	1.3

Table 2. Demographic data of women with morbidly-adherent placenta previa during the studied period.

	Range	Mean \pm SD
Age (Years)	21 - 32	26.7 ± 4.9
Gestational Age (Weeks)	29 - 39	33.8 ± 4.6

Table 3. No. of previous CS in women with morbidly-adherent placenta previa during the studied period (n = 44).

	Range	Mean \pm SD
Parity		
Range		1 - 5
Median (IQR)		3 (2 - 4)
Previous CS		
1	13	29.6
2	16	36.4
3	8	18.2
4	6	13.6
5	1	2.3

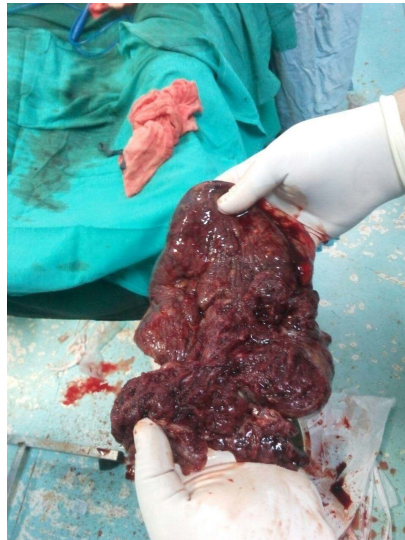


Figure 1. Placenta accrete during cesarean deliveries.

3 Of the included 44 women with morbidly-adherent placenta previa (**Figure 2, Figure 3**), 24 (54.6%) presented with antepartum hemorrhage (**Table 4**). Antenatal ultrasonography was suggestive of placenta accreta in only 20 cases (resulting in a false negative rate of 54.6%) (**Table 5**). Intraoperatively, balloon catheterization was placed in 0 cases (0%). Uterine artery ligation was performed in 24 (54.5%) cases, and internal iliac artery ligation in 4 (9.1%) cases. Hysterectomy was performed in 15 (34.1%) cases, only 3 (6.8%) were total hysterectomy. Bladder injury was encountered in 9 (20.5%) cases. compression sutures were performed in 28 (63.6%) cases (**Table 6**). The median estimated intraoperative blood loss was 2.5 L (range: 1 - 5 L; interquartile range: 2 - 3 L). The overall rate of blood transfusion in included women was 35/44 (79.6%). The median was 3 units (range: 1 - 5 units; interquartile range: 2 - 4 units). The overall rate of FFP transfusion was 35/44 (79.6%). The median was 3 units (range: 1 - 5 units; interquartile range: 1 - 4 units). Only 1 (2.3%) woman received platelet transfusion and only 1 (2.3%) woman received cryoprecipitate transfusion (**Table 7**).

4 Of the included 44 women, 3 (6.8%) developed DIC, 12 (27.3%) were admitted to ICU postoperatively, Only 1 (2.3%) patient readmitted because of developing postoperative collection. 3 (6.8%) were re-operated upon (for postpartum collapse and intraabdominal bleeding). Like one case of maternal death (**Table 8**). The median hospital stay after delivery was 3 days (range: 2 - 5 days; interquartile range: 2.5 - 4 days). Of the included 44 neonates, 23 (52.3%) were males, while 21 (47.7%) were females. The median birth weight was 2734 g (range: 700 - 4500 g; interquartile range: 1388 - 3605 g). The median 1-min Apgar score was 4 (range: 1 - 9; interquartile range: 3 - 7). The median 5-min Apgar score was 5 (range: 3 - 9; IQR: 4 - 7) (**Table 9**).

4. Discussion

Over a 6 months period there were 3300 cesarean deliveries and a 44 cases diag-

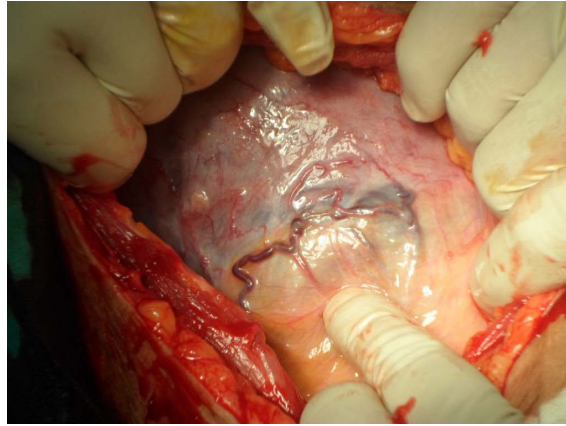


Figure 2. Morbidly-adherent placenta previa.

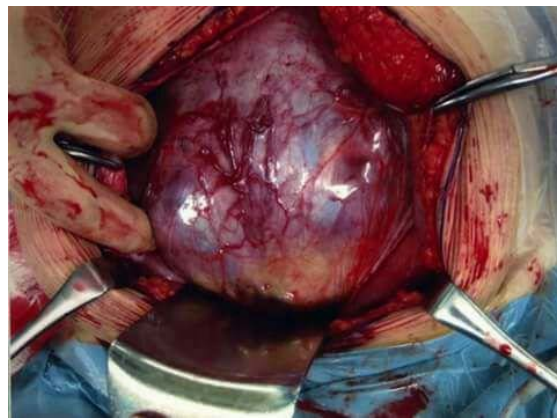


Figure 3. Morbidly-adherent placenta previa.

Table 4. APH as the presenting complaint in included women with morbidlyadherent placenta previa during the studied period (n = 44).

	No	%
APH		
Yes	24	54.6
No	20	45.5

Table 5. Sonographic prediction of morbid placental adherence in included women with morbidly-adherent placenta previa (n = 44).

	No	%
Antenatal Ultrasonography		
High possibility of placenta accrete	20	45.5
Low possibility of placenta accreta	24	54.6

nosed as having placenta accreta. The incidence of placenta accreta was 1/75 cesarean deliveries. Compared with the literature which reports that the incidence of placenta accreta in 2006 was 1/210 deliveries [4]. The incidence of placenta accreta at El-Shatby Maternity University Hospital is increased because it's a tertiary referral centre for three governorates. In our study all the included cases had at least one previous CS, numbers of patients with placenta previa and a history

Table 6. Surgical management and intraoperative findings in included women with morbidly-adherent placenta previa (n = 44).

	No	%
Balloon catheterization	0	0
Bilateral uterine artery ligation	24	54.5
Internal Iliac Artery Ligation	4	9.1
Hysterectomy	15	34.1
Total hysterectomy	3	6.8
Sub Total hysterectomy	12	27.3
Bladder Injury	9	20.5
Compression sutures	28	63.6

Table 7. Estimated intraoperative blood loss and blood transfusion in included women with morbidly-adherent placenta previa during the studied period (n = 44).

	No	%
Estimated Blood Loss (L)		
Range		1 - 5
Median (IQR)		2.5 (2 - 3)
Blood Transfusion	35	79.6
Range		1 - 5
Median (IQR)		3 (2 - 4)
FFP Transfusion	35	79.6
Range 1 - 5 Median (IQR)		1 - 5 3 (1 - 4)
Platelet Transfusion	1	2.3
Cryoprecipitate Transfusion	1	2.3

Table 8. Postoperative findings in included women with morbidly-adherent placenta (n = 44).

	No	%
DIC	3	6.8
ICU admission	12	27.3
Reoperation	3	6.8
Readmission	1	2.3
Duration of hospital stay (days)		
Range		2 - 5
Median (IQR)		3 (2.5 - 4)
Death	1	2.3

of one, two, three, four and five cesarean section delivery were 7%, 29.6%, 36.4%, 18.2%, 13.6% and 2.3% cases, respectively. None of patients was with a history of more than five cesarean section delivery. Of the 44 patients in the current study, the mean age of included women with morbidly adherent placenta was

Table 9. Neonatal Outcome in Included Women with Morbidly-Adherent Placenta (n = 44).

	No	%
Neonatal Gender		
Male	23	52.3
Female	21	47.7
Intrauterine fetal death	1	2.3
NICU admission	14	31.8
Birth Weight (g) Range	700 - 4500	
Median (IQR)	2736 (1388 - 3605)	
1 st min APGAR Score		
Range	1 - 9	
Median (IQR)	4 (3 - 7)	
5th min APGAR Score		
Range	3 - 9	
Median (IQR)	5 (4 - 7)	

26.7 ± 4.9 years (range: 21 - 32 years). Of the included 44 women with morbidly-adherent placenta previa, 24 (54.6%) presented with APH. According to the current study the antenatal ultrasonography and doppler was suggestive of morbid adherence in only 20 cases (resulting in a false negative rate of 54.6% and a sensitivity of 45.5%). This may be due to the fact that most ultrasonic examinations were performed by emergency department doctors with limited experience. Although there still appears to be a difference of opinion in the literature regarding the accuracy of ultrasound for the diagnosis of placenta accrete. With the exception of the Lam study who reports a sensitivity of 33% [14], all other studies report a sensitivity of 77% - 93% [14] [15]. Morbidity from placenta accreta is caused by problems associated with massive bleeding. In the present study, the median estimated intraoperative blood loss was 2.5 L (range: 1 - 5 L; IQR: 2 - 3 L). The overall rate of blood transfusion in included women was 35/44 (79.6.8%) (range: 1 - 5 units). The overall rate of FFP transfusion was 35/96 (79.6%) (range: 1 - 5 units). Only 1 (2.3%) woman received platelet transfusion and only 1 (2.3%) woman received cryoprecipitate transfusion. The present findings are similar to other reported rates of transfusion. For example a more recent study, which analyzed 99 placenta accreta cases, found that approximately 75% required blood transfusion with a mean of 5.4 ± 2.1 units of RBCs [16]. Thus, blood transfusion should be anticipated, and massive transfusion is not rare in these obstetric patients. Other causes of early morbidity (coagulopathy, admission to the intensive care units, bladder injury & early reoperation) are also high in patients with placenta accreta, as reported in previous study [10]. In the current study 3 of the 44 patients had DIC and admitted to the ICU (6.8%), 12 were admitted to ICU postoperatively. The duration of ICU admission ranges from 2 to 5 days. In terms of maternal morbidity, 15 cases (34.1%) underwent a cesarean hysterectomy. Three of them were through total hysterectomy while the majority (9 cases) was by subtotal hysterectomy. Uterine preserving procedures

included in 32 cases, 24 cases by uterine artery ligation, 4 cases of the 24 cases accompanied by internal iliac artery ligation, and 28 cases by compression sutures. Of the 44 patients, 1 case required readmission because better care in our hospital, complaining of post-operative collection, 3 cases needed reoperation (2 cases to control bleeding while the third with a missed bladder injury). Maternal mortality has been reported in up to 7% of cases [17]. In the current study there were one maternal death (2.7%) because better care in our hospital. In cases of placenta accreta the incidence of perinatal complications is also increased mainly due to preterm birth and small for gestational age fetuses [10]. In the present study, the mean gestational age at delivery was 33.8 ± 4.6 weeks' gestation (range: 29 - 39 weeks' gestation). The median birth weight was 2800 g (range: 700 - 4500 g; IQR: 1388 - 3605 g). James *et al.*, reported that the sex ratio associated with placenta accreta favors females [18]. In the present study, of the included 44 neonates, 23 (52.3%) were males, while 21 (47.7%) were females. So, the result of the current study is opposite to the result of the previous literature. The median 1-min Apgar score was 4 (range: 1 - 9; IQR: 3 - 7) and median 5-min Apgar score was 5 (range: 3 - 9; IQR: 4 - 7). 14 infants were admitted to the neonatal intensive care unit (NICU). Neonatal outcome in the current study was uniformly good according to median birth weight and the median 5-min Apgar score.

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