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Original Research Article

Maternal and neonatal outcomes of placenta previa and accreta at Assiut women's health hospital, Egypt

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ABSTRACT

Background: The aim of the current study was to estimate the incidence of placenta previa (PP) and accreta (PA) in the period from January 2015 to December 2016 at Women's Health Hospital, Assiut University, Egypt and to evaluate the maternal and neonatal outcomes.
Methods: The study included all cases of PP with or without suspicion of accreta who were diagnosed preoperatively by ultrasound at Women's Health Hospital, Assiut University. Maternal and neonatal outcomes were evaluated. All intraoperative and postoperative data were reported. The obtained data was analyzed by means of SPSS software (version 22.0) and $p<0.05$ was taken as the significant level.
Results: Total number of deliveries was 29027 cases. The number of cases of PP was 494 cases making an incidence of 1.7%, among them 95 cases were confirmed during surgery to be accreta (0.33%). Uterine artery ligation was carried out 300 cases (60.7%) of cases while cesarean hysterectomy was performed in 56 cases (11.3%). Bladder injury occurred in 58 cases (11.7%), ureteric injury occurred in 6 cases (1.2%), colon injury occurred in 1case (0.2%) and vascular injury occurred in 2 cases (0.4%). Maternal mortality was 4 cases (0.8%). The mean gestational age was 34.73 ± 2.8 weeks. Also, over the two years there were 148 neonatal cases (29.9%) needed assisted ventilation in the form of ambu bag or endotracheal intubation gestation. NICU admission needed in 109 neonatal cases (22.06%) and neonatal mortality reported in 18 neonates (3.6%).
Conclusions: The incidence of both PP and PA is very high in our locality due to increase CS rate.

Keywords: Antepartum hemorrhage, Maternal morbidity, Placenta accreta, Placenta previa

INTRODUCTION

Placenta previa (PP) is an obstetric complication that occurs in the second and third trimesters of pregnancy. It may cause serious morbidity and mortality to both the fetus and the mother. It is one of the leading causes of vaginal bleeding in the second and third trimesters.[1] Placenta previa complicates approximately 0.4 % pregnant women and has a mortality rate of 0.0 3%.[2,3]

Placenta previa may be associated with placenta accreta (PA) or one of its more advanced forms as (placenta increta and percreta). Clinically, PA becomes problematic during delivery when the placenta does not completely separate from the uterus and is followed by massive obstetric hemorrhage, leading to disseminated intravascular coagulopathy; the need for hysterectomy; surgical injury to the ureters, bladder, bowel, or neurovascular structures; adult respiratory distress syndrome; acute transfusion reaction; electrolyte imbalance; and renal failure.[4]

In the period of 1982-2002, researchers have reported the incidence of PA as 1 in 533 deliveries.[5] The marked increase in the incidence has been attributed to the

increasing prevalence of cesarean delivery in the recent years.

The incidence of prenatal complications is also increased mainly due to preterm birth and small for gestational age fetuses, also the incidence of RDS in infants delivered at 30-35 weeks gestation by cesarean section was significantly higher in mothers with placenta previa than in women without PP.[6,7] Placenta previa also was weakly but significantly associated with an increased risk of major congenital anomalies.[8]

The current study aims to evaluate the prevalence of cases of PP and PA attending to Women's Health Hospital Assiut University in the period from January 2015 to December 2016. Additionally, to evaluate the maternal and neonatal outcomes of PP and PA.

METHODS

The study was conducted at Women's Health Hospital; Assiut University included all cases delivered from January 2015 to December 2016 with PP which diagnosed preoperatively by ultrasound or postoperatively with or without PA. It was a prospective descriptive study. All cases were evaluated as regards history and examination, ultrasound report to knew if there is abnormal placentation as placenta accreta and its degree, hemoglobin and platelets levels before delivery.

The ultrasound finding criteria for confirmation of placenta previa was placental insertion totally or partially into the lower segment of the uterus. The color Doppler criteria suggestive of placenta accreta include: diffuse or focal lacunar flow, vascular lakes with turbulent flow, hypervascularity of serosa–bladder interface and markedly dilated vessels over peripheral sub placental zone.[4]

Maternal outcomes

Type of cesarean section, amount of blood loss during the procedure, need for blood transfusion and type and amount of blood products, presence of abnormal placentation (accreta and increta or percreta), injury to nearby structures as bladder and colon or ureter and vascular injury, hysterectomy if done: total or subtotal, the need for additional surgical step as (uterine artery ligation, intra uterine balloon insertion, transverse B-Lynch, radiological intervention (IIAE) or cases with placenta left in situ.

Post-operative hemoglobin, post-partum hemorrhage, pelvic hematoma, ICU admission, need for blood transfusion, need for second operation, DVT or pulmonary embolism, post-operative infection, maternal mortality and duration of hospital stay were recorded.

Neonatal outcomes

Gestational age at time of delivery, birth weight, Apgar score at 1 minute and after 5 minutes, the need for assisted ventilation, congenital anomalies, NICU admission and neonatal mortality were recorded.

Statistical analysis

Data were processed using Statistical Package of Social Sciences version 22.0 (SPSS version 22.0 Inc., Chicago, IL, USA). Quantitative data were expressed as mean± standard deviation (SD) as appropriate. Qualitative data was expressed as frequency (numbers) and percentages. A probability value (p-value) <0.05 was considered statistically significant.

RESULTS

The total number of deliveries during the 2-years study period was 29027 cases. Cases diagnosed as PP were 494 cases (1.7%); of whom 95 cases (19.2%) were proved to have a placenta accreta. Therefore, the incidence of PA was 0.4% among all deliveries.

Table 1: The baseline and pre-operative characteristics of the study participants.

Characteristics	(n=494)
Age (years)	30.7±2.8
Weight (kg)	77.5±5.5
Parity #	3 (2-5)
Previous CS	2.9±0.8
Gestational age (weeks)	36.6±0.6
Pulse	80.2±5.0
SBP	120.1±2.5
DBP	78.7±3.1
Pre-operative hemoglobin (gm/dl)	10.88±0.67

CS (cesarean section), SBP (Systolic Blood Pressure), DBP (Diastolic Blood Pressure); all variables are presented as mean and standard deviation; # data are presented as median (range).

Table 2: Operative data of the study group.

	N (%)
Additional interventions	
Uterine artery ligation	300 (60.7%)
Leave placenta in situ	3 (0.6%)
Intra uterine balloon insertion	12 (2.43%)
Transverse B Lynch	14 (2.83%)
Radiological intervention (*IIAE)	6 (1.21%)
Cesarean hysterectomy	56 (11.34%)
Blood transfusion	468 (94.7%)
Injury to nearby structures	
Bladder injury	58 (11.74%)
Ureteric injury	6 (1.21%)
Colon injury	1 (0.2%)
Vascular injury	2 (0.4%)

*IIAE: Internal iliac artery embolization

Table 1 shows the baseline characteristics of the study participants.

Regarding the operative data of the patients, the most common additional surgical intervention needs was uterine artery ligation in 300 patients (60.7%).

Cesarean hysterectomy was performed in 56 cases (11.74%). The most common complication of surgery was bladder injury in 58 patients (11.74%) (Table 2).

Table 3: Post-operative data of the study group.

Variables	Mean±SD or n (%)
Post-operative hemoglobin (gm/dl)	9.47±1.25
Atonic Post-partum hemorrhage	2 (0.4%)
Post-partum internal hemorrhage	7 (1.42%)
Post-partum pelvic hematoma	2 (0.4%)
Post-operative blood transfusion	105 (21.26%)
ICU admission	35 (7.09%)
Post-operative infection	2 (0.4%)
Post-operative pulmonary embolism	1 (0.2%)
Re-intervention	13 (2.63%)
• Just exploration	3 (0.61%)
• Transverse B Lynch	3 (0.61%)
• Intrauterine balloon insertion	1 (0.2%)
• Internal iliac artery ligation	1 (0.2%)
• Hysterectomy	2 (0.4%)
• Urological intervention	1 (0.2%)
• Internal iliac artery embolization + hysterectomy	1 (0.2%)
• Secondary sutures	1 (0.2%)
Post-operative duration of hospital stays (days)	3.34±3.13
Maternal mortality	4 (0.8%)

Regarding the post-operative complications; atonic PPH was present in 2 cases (0.4%), internal hemorrhage in 7 cases (1.42%), pelvic hematoma in 2 cases (0.4%), post-operative infection in 2 cases (0.4%) and pulmonary embolism in one case.

Thirteen cases (2.63%) needed re-intervention, two of them ended with hysterectomy. Maternal death occurred in 4 cases (0.8%) (Table 3).

The mean birth weight for neonates of all cases was 2758.8±554.09 gm. Ninety-one babies (18.4%) required assisted ventilation and 109 babies (22.1%) required admission to NICU. Finally, the neonatal mortality rate was 3.6% of cases (Table 4).

Table 4: Neonatal outcomes of the study group.

Variables	Mean±SD or n (%)
Birth weight (grams)	2758.8±554.09
Apgar score at 1 min	7.83±2.81
Apgar score 5 mins	8.96±2.39
Assisted ventilation	91 (18.4%)
*NICU admission	109 (22.1%)
Congenital anomalies	5 (1.0%)
Neonatal mortality	18 (3.6%)

*NICU: Neonatal intensive care unit.

DISCUSSION

Maternal and fetal morbidity and mortality from PP and PA represent a challenge to the obstetricians. With the rising incidence of caesarean sections combined with increasing maternal age, the number of cases of PP and its complications, will continue to increase.[9]

In the present study the incidence of PP was 1.7% that is higher than which reported 0.4%.[2] Also the incidence of PA was 0.4% also higher than which reported 1/533 deliveries.[5] This alarming increase appears to be directly related to the rising rates of CS plus this risk increase with increase number of CS.

In the present study 468 cases (94.7%) received blood transfusion intra operatively, there were some cases needed up to 15 units of blood. The present findings were similar to that of Warshak et al who reported that approximately 75% of patients required blood transfusion with a mean of 5.4±2.1 units of RBCs.[10] Thus, blood transfusion should be anticipated, and massive transfusion is not rare in these obstetric disasters.

In the present study 35 cases (7.09%) needed ICU admission; this is in agreement with Eller et al, 2009 study who reported that ICU admissions are high in patients with PP and accreta.[6] In present study bladder injury was occurred in 68 cases (11.84%). Additionally, ureteric injury occurred in 6 cases (1.21%). Also authors reported one case (0.2%) of colonic injury and 2 cases (0.4%) of vascular injury that is in agreement with Rosenberg et al. 2011 study who reported that surgical complications such as cystotomy, ureteric and vascular injury are more with PA.[11] Additionally, these results were coincided with Alanwar et al, 2018 who reported the incidence of urinary tract injuries during CS with morbid adherence placenta was 21.7% (Bladder 11.7%, Ureter 4.7%, and bladder with ureter 5.3%).[12] In rare cases, the placenta could invade beyond the abdominal viscera and reach the anterior abdominal wall.[13]

In the present study, the placenta left in situ in 3 cases of PA. All cases needed blood transfusions (up to 10 units) and one of them ended by post-operative uterine sepsis and ended by hysterectomy. Also these cases needed additional management in the form of uterine artery ligation, and massive antibiotic therapy, this is in contrast

to Sentilhes et al, 2010 who reported that conservative management with leaving placenta in situ is an option and may decrease blood loss and other perioperative morbidity in select patients.[14] However, authors agree with Timmerman et al., 2007 who chose to go ahead with a hysterectomy and reserve this management option only for patients who have minimal blood loss and strongly desire fertility preservation.[15]

In the present study uterine artery ligation was performed in 300 cases (60.73%). this is in agreement with many authors who advocate routine uterine artery ligation in PA.[16] Another study done at Tanta University Hospital which reported 100% success of double uterine artery ligation in management of PA.[17] Others reported no value for this ligation.[18] Mitwaly and his colleague tried a new method of combined surgical steps in management of PA.[19] It was successful in 18 out of 20 cases for conservation of the uterus with no postpartum hemorrhage or maternal mortality. Other studies reported successful outcome for control of bleeding with the use of Foley's catheter balloon tamponade as a simple measure during CS.[20]

In the present study cesarean hysterectomy was performed in 56 cases (11.34%), that is similar to that reported by Wright et al, 2011 who found that hysterectomy is the most commonly performed procedure for the control of obstetric hemorrhage.[21] Previous study in present hospital reported that abnormal placentation was the most second most common indication for peripartum hysterectomy (21.9%) after uterine atony.[22]

In the present study maternal mortality occurred in 4 cases, 3 of them were accreta and one case previa non-accreta. This is greater than which reported by Kim et al., 2013 who found that maternal mortality rate in cases of PP was 0.03%.[23] That is may be due to the improper preparation for cases and may be due to most of cases come in an emergency state and the operation done by non-experience doctor. Moreover, the delayed decision to perform hysterectomy can be adding factor. In spite of the declining maternal mortality ratio in present hospital, postpartum hemorrhage still represents a major cause of maternal mortality and PP contributes significantly to those cases.[24]

In the present study congenital anomalies were reported in 5 neonatal cases (1.0%). This is smaller than what is reported by Kancher et al, 2015 who found 6.2% of women with PP delivered a singleton infant with a major congenital malformation, compared with 3.8% of unaffected women.[25] This is may be due to the sample size that was insufficient to detect the actual rates of congenital anomalies in these patients.

CONCLUSION

In conclusion, the incidence of both PP and PA is very high in present locality due to increase CS rate.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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