Original article

PLACENTA ACCRETA ASSOCIATED MORBIDITIES - DOES EARLY DIAGNOSIS IMPROVE MATERNAL AND PERINATAL OUTCOMES? A 5 YEAR STUDY

Poonam Yadav, Neelam Singh,Meeta Gupta, Mohita Agarwal

Abstract

Objective:

To study the risk factors of placenta accreta and comparison of maternal and neonatal outcomes in cases with and without predelivery diagnosis of placenta accreta.

Materials and Methods:

A retrospective study was performed in patients diagnosed as placenta accreta at S.N. Medical college, Agra between January 2014 to December 2019.Cases were divided into those with predelivery diagnosis (non emergent) and without pre delivery diagnosis (emergent) of placenta accreta. Non emergent group was scheduled for planned elective hysterectomy after steroid administration at 34-36 weeks. Risk factors of placenta accreta were studied and comparison of maternal and neonatal outcomes in both the groups was done.

Results:

During the study period between January 2014 and December 2019, 26 women with histopathologically confirmed placenta accreta were identified, out of them 18 were diagnosed before delivery and 8 were diagnosed during surgery. Various risk factors of placenta accreta were identified out of which multiparity, history of previous caesarean section and presence of placenta previa in the present pregnancy were found to be important risk factors. Comparing non emergent and emergent group, there was less blood loss during surgery and lesser units of packed red blood cells and fresh frozen plasma (FFP) transfusion was required in non emergent group. There was no statistically significant difference in neonatal outcomes in both the groups.

Conclusion:

Multiparity, previous caesarean section and placenta previa in present pregnancy are important risk factors of placenta accreta. Planned delivery at 34-36 weeks with multidisciplinary approach is associated with significant reduction in maternal morbidity without increasing neonatal morbidity.

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Introduction

Placenta accreta spectrum is defined as abnormal placental invasion into the uterus. This include placenta accreta when chorionic villi are adhered to myometrium, increta when villi invades the myometrium and percreta when villi reaches serosa and adjacent organs. The incidence of placenta accreta has been increasing over the years.

The most important risk factors for placenta accreta are previous caesarean section and placenta previa. Placenta previa alone is associated with a 5-10% risk of accreta. Risk of placenta accreta increases with increasing number of caesarean sections. It is 0.2% for the first, 0.3% for the second,0.6% for third,2.1% with the fourth and is up to 6.7% with the sixth or more caesarean section. Risk of placenta accreta in placenta previa with prior 1,2,3,4 and 5 or more caesarean delivery is 3.3%,11%,40%,61% and 67% respectively.[1] Other risk factors include advance maternal age, smoking, prior uterine surgery or curettage or any

Author Affiliations

Poonam Yadav, Associate Professor, **Neelam Singh**, Senior Resident, **Mohita Agarwal**, Associate Professor:
Department of OBG, SN Medical College, Agra
Meeta Gupta, Associate Professor
Department of OBG, ASCOMS, Jammu

Correspondence
Dr. Mohita Agarwal, Associate Professor, Department of OBG, SN Medical College, Agra
Mobile: 90275-22672
Email:bestmolly@gmail.com

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Key Words: :
Placenta accreta spectrum, Morbidly adherent placenta

uterine intervention, previous uterine artery embolization, post-partum endometritis, uterine pathology, caesarean scar pregnancy and IVF pregnancies.

Prenatal diagnosis of placenta accreta can be done by USG with colour Doppler and MRI.MRI is required especially in cases where placenta is posterior , to know the depth of invasion, parametrial extension and in suspicious cases of placenta accreta on USG. Definitive diagnosis of placenta accreta is made by pathological specimen obtained after hysterectomy upon visualisation of chorionic villi embedded in myometrium with absence of decidual layers between them. Elective caesarean delivery and hysterectomy at 34 weeks after antenatal steroid is the gold standard treatment of placenta accreta. Other treatment options to preserve the uterus include expectant management, embolization of uterine arteries, methotrexate therapy and uterus preserving surgeries.

Materials and Methods:

It was a prospective study conducted in Department of Obstetrics and Gynaecology of S.N. Medical College, Agra. All cases were analysed and outcomes were evaluated. Primary outcome was preoperative and post-operative morbidity and mortality in elective versus emergency LSCS. Secondary outcomes were any identifiable risk factor , amount of blood loss and duration of hospital stay.

Cases were divided into those with (n=18) and without (n=8) diagnosis of placenta accreta made before delivery. Pre delivery diagnosis of placenta accreta was confirmed by USG with Doppler and MRI in cases where USG was suspicious. Other group consisted of cases of placenta accreta diagnosed per-operatively during emergency caesarean section in unbooked patients.

Once the diagnosis of placenta accreta is confirmed, all patients were offered planned caesarean hysterectomy with prior ureteric stenting at 34-35 weeks of gestation after steroid cover. All cases were managed by a multidisciplinary team consisting of senior obstetrician, neonatologist, anaesthetist and urosurgeon. Data was collected about the incidence and risk factors of placenta accreta and maternal and neonatal complications associated with placenta accreta. Statistical analysis was performed using "student t test" and "chi square test."

Results:

During the study period between January 2014 and December 2019 ,26 women with histopathologically confirmed placenta accreta were delivered. Our study investigated risk factors of placenta accreta and found that the risk of placenta accreta was increased in multipara women, women with placenta previa in this pregnancy and in women with previous caesarean delivery. Table 1 shows that out of 26 patients diagnosed with placenta acreta,24 patients had history of previous uterine surgery, in which 22 patients had previous caesarean delivery and two patients had history of D&C done previously. Two patients diagnosed with placenta accreta did not have any history of uterine surgery and one patient had history of manual removal of placenta in previous pregnancy.

Table 1. Risk Factors of Placenta Accreta

Risk factors	Number	Percentage (%)
Age		
<30	16	61.54
>30	10	38.46
Socio economic status (Kuppuswamy's socioeconomic status scale) low, medium, high	6 15 5	23.08 57.69 19.23
Parity		
primipara	-	
multipara	26	100
Pregnancy induced hypertension or pre eclampsia		
Yes	6	23.08
No	20	76.92
Prior uterine surgery		
None	2	7.69
Myomectomy	-	
Septum removal	-	
D & C	2	7.69
Caesarean delivery	22	86.62
1. One	11	42.31
2. Two	10	38.46
3. Three or more	1	3.85
Previous history of MRP	1	3.85
Previous caesarean uterine incision type	24	92.31
LSCS	2	7.69
Classical		
History of placenta previa in this pregnancy	15	57.69
Interval between LMP and last caesarean section	2	7.69
< 12 Months	10	38.46
12-24 Months	14	53.85
> 24 Months		

Pre operative ureteric stenting was done in all

patients with pre delivery diagnosis of placenta accreta. Women with predelivery diagnosis of placenta accreta had clinically significant shorter hospital stay, less amount of blood loss during surgery, received less units of packed red blood cells and FFP. Out of 18 women with predelivery diagnosis of placenta accreta, three patients had bladder injury during surgery whereas two patients had bladder injury and one had ureteric injury during surgery in patients without pre delivery diagnosis of placenta accreta. Two patients in both the groups required bilateral internal artery ligation to control bleeding. One patient without predelivery diagnosis of placenta acreta expired on day two due to DIC in ICU whereas all patients with pre delivery diagnosis were safely discharged (Table 2).

Table 2. Comparison of maternal outcomes between patients with predelivery diagnosis (non emergent) and those without predelivery diagnosis(emergent) of placenta accreta.

Maternal outcome	Predelivery diagnosis (non emergent)	Without predelivery diagnosis(emergent)	P value
Gestational age at time of caesarean section (weeks)	35.76±1.46	36.88±0.98	0.605
Estimated blood loss in litres	1.12±0.38	1.86±0.32	0.0001
Operative time (minutes)	59.17±6.91	55.00±5.35	0.1438
Unit of PRBC transfused	2.44±0.51	4.50±0.53	0.0001
Unit of FFP transfused	2.50±0.51	4.50±0.53	0.0001
Maternal ICU admission	10	6	0.3565
Maternal hospital stay(in days)	4.50±0.51	9.50±0.53	0.0001
Surgical complications Bladder injury Ureter injury Intestine injury	 3 - -	 2 1 -	0.6257
Internal iliac artery ligation	2	2	0.3743
Maternal death	-	1	

Compared to those without predelivery diagnosis of placenta accrete, those with predelivery diagnosis had no significant difference in birth weight of new born,neonatal admission to NICU, NICU length of stay, frequency of respiratory distress syndrome and need for intubation. Out of eight mothers without predelivery diagnosis of placenta acreta, four newborn had NICU admission in which one developed respiratory distress and was intubated. Out of 18 women with predelivery diagnosis of placenta acreta, eight newborns (44%)had NICU admission and two of them developed respiratory distress and were intubated (Table 3).

Table 3. Comparison of neonatal outcomes between patients with predelivery diagnosis(non emergent) and those without predelivery diagnosis(emergent) of placenta acreta.

Neonatal outcome	Predelivery diagnosis (non emergent)	Without predelivery diagnosis(emergent)	P value
Birth weight (Kg)	2.07±0.09	2.18±0.20	0.0614
NICU Admission	8	4	0.7969
NICU length of stay(in days)	5.17±0.86	4.54±0.73	0.0846
Frequency of RDS	2	1	0.9200
Need for intubation	2	1	0.9200

Discussion:

The incidence of placenta accreta has been increasing in the last few years due to increase rate of caesarean section. It is a major contributor to maternal morbidity and mortality. The main focus of the present study was to compare the maternal and neonatal outcome in women with and without pre delivery diagnosis of placenta accreta. In our study, only cases with pathologically confirmed placenta accreta were included. We found that all patients were multiparous and majority had placenta previa in this pregnancy. In addition majority of patient had history of previous caesarean section.

Women with pre delivery diagnosis of placenta accreta were scheduled for elective surgery at 34 -35 weeks to decrease the morbidity associated with emergency hysterectomy. This practise did not show any increase in neonatal morbidity however maternal morbidity was significantly reduced. The adverse outcome most commonly associated with placenta percreta were increased maternal haemorrhage and bladder injury. One patient without pre-delivery diagnosis of placenta accreta expired on day two . The main complication associated with placenta accreta is major obstetric haemorrhage leading to coagulopathy, multi system organ failure and death.[2-9]

Similarly many retrospective cohort studies of placenta accreta have documented that woman with placenta accreta should have their delivery in a centre of excellence with a multidisciplinary team to reduce large volume blood transfusion and ICU admission without having any adverse effect on neonatal outcome[10].

Other studies have also demonstrated association between placenta accreta and various risk factors. Wu S et al, Miller DA et al and Usta IM et al in their studies found an increased risk of placenta accreta in women with history of previous caesarean delivery[11]. Al-Serehi A et al found increased risk of placenta accreta in women with history of previous uterine surgery[12] in their study. Hung TH et al in their study found increased risk of placenta accreta in women with placenta previa

diagnosed in present pregnancy. Smoking, hypertensive disorders, IVF pregnancy, advanced maternal age have also been suggested as risk factor of placenta accreta but no such association was found in our study.

Bowman ZS et al and Rac MW et al in their studies concluded that optimal timing of delivery of the women with placenta accreta ranges from 34 -36 weeks to 36-38 weeks. As complications related to blood loss are lower in non-emergent compared to emergent deliveries, scheduling of surgical intervention at 34-35 weeks after administration of steroid for lung maturity demonstrated a reduction in emergency deliveries from 23-64% with no adverse effects on neonatal outcomes. Pre operative optimization of haemoglobin is very necessary in all patients with placenta accreta. The incidence of unintentional urinary tract injury at peripartum hysterectomy was higher than rates of complication in hysterectomies for other gynaecological indications. Opening the retroperitoneal space and visualising the ureters and preoperative placement of ureteric stent can reduce the risk of urinary tract injury.

The role of bilateral internal iliac artery ligation at the time of hysterectomy for placenta acreta is currently unclear.

During planned caesarean hysterectomy in the absence of spontaneous placental separation the placenta should be left in situ to minimize blood loss and uterotonics should be avoided.

Total hysterectomy with placenta in situ is preferred over subtotal hysterectomy in cases of placenta accreta.

Conclusion:

Based on the results of our study all women at risk for placenta accreta (placenta previa, previous uterine surgeries) should undergo careful imaging to assess for the presence of placenta previa as pre-natal diagnosis of placenta accreta is very important in reducing the maternal morbidity associated placenta previa. These women should have their delivery scheduled in a centre of excellence with a dedicated multidisciplinary team.

Our study concluded that with the optimum antenatal care and early identification of cases at high risk of placenta accreta would contribute effectively in improving the diagnosis and thereby lowering the maternal and perinatal morbidity and mortality. Planned caesarean delivery at a tertiary centre with multidisciplinary approach is imperative for an improved maternal outcome.

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