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RESEARCH ARTICLE

Demographic characteristics, risk factors, maternal and foetal outcome in placenta accreta spectrum - a retrospective study

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ABSTRACT

Background: Placenta accreta spectrum is a complex obstetrical entity of abnormal adherence of placenta associated with maternal mortality and severe morbidity. The incidence of placenta accreta spectrum is on increasing trend over past few years. **Aim:** This study aimed to analyze demographic characteristics, risk factors predisposing to placenta accreta spectrum and to study maternal and foetal outcome of these patients. **Methods:** This was a retrospective observational study conducted in the Department of Obstetrics and Gynaecology in Government General Hospital, a tertiary care referral hospital between November 2019 to October 2021. **Results:** The incidence of placenta accreta spectrum was 0.8 per 1000 maternities with 8 patients (53.33%) in the age group of 25 to 29 years. Nine patients (60%) were second gravida. Twelve patients (80%) had previous cesarean deliveries. Thirteen patients (86.66%) had co-existing placenta praevia. Only 7 patients (46.66%) were booked. Eleven patients (73.33%) required cesarean hysterectomy. Five babies (33.33%) required NICU admission. Three maternal deaths occurred and all these 3 patients were unbooked. **Conclusion:** Previous cesarean delivery and co-existing placenta praevia are identifiable risk factors for placenta accreta spectrum. Antenatal diagnosis of placenta accreta spectrum is associated with improved maternal and foetal outcome as it allows multidisciplinary team approach during management.

Keywords: Placenta accreta spectrum, placenta praevia, previous caesarean delivery, cesarean hysterectomy, internal iliac artery ligation.

Placenta accreta is defined as abnormal trophoblastic invasion of part or all of the placenta into myometrium of uterus.[1] It has become a significant life-threatening obstetrical issue due to its increased incidence owing to increase in cesarean deliveries.[2] It is associated with maternal mortality, morbidity and perinatal complications. Previous cesarean delivery, co-existing placenta praevia, multiparity, advanced maternal age, previous uterine surgery are common risk factors for placenta accreta spectrum.[3] In this study, an attempt has been made to analyze the risk factors and identify predictors of placenta accreta spectrum in order to ensure favourable maternal and foetal outcome.

Materials and methods

This was a retrospective study conducted in the Department of Obstetrics and Gynaecology in Government General Hospital, a tertiary care centre between November 2019 to October 2021.

Hospital records of all pregnant women more than 28 weeks of gestational age who had any type of placenta accreta spectrum diagnosed on ultrasound or MRI or had been diagnosed intraoperatively as placenta accreta spectrum were studied. Mode of presentation, gestational age at the time of delivery, history of previous cesarean delivery, D & C, uterine surgery, manual removal of placenta in previous pregnancy, mode of delivery of current pregnancy, intervention performed (cesarean hysterectomy, internal iliac

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artery ligation)foetal outcome, duration of hospital stay were noted.

Statistical analysis: Categorical variables were presented in numbers and percentage. Data was entered in MS EXCEL spread sheet and analysis was done using SPSS version 21.0.

Results

There were 18563 deliveries during the study period of which 15 patients had placenta accreta spectrum, the incidence being 0.8 per 1000 pregnancies. The demographic and obstetric characteristics collected are presented in table 1.

Table 1:Demographic and obstetric characteristics

Variables		No. of patients (n)	Percentage (%)
Registration status	Booked	7	46.66
	Unbooked	3	20
	Transferred	5	33.33
Age	20 -24 years	4	26.66
	25 -29 years	8	53.33
	30 -34 years	3	20
Gravidity	Primi	Nil	-
	Gravida 2	9	60
	Gravida 3	5	33.33
	Multigravida	1	6.66
Associated risk factors	Previous cesarean delivery	12	80
	Previous D&C	1	6.66
	Previous myomectomy	1	6.66
	Co-existig placenta praevia	13	86.66
Type of placentation	Placenta accreta	9	60
	Placenta increta	2	13.33
	Placenta percreta	4	26.66
Time of diagnosis	Antenatal	8	53.33
	Intraoperative	7	46.66

Table 2: Gestational age at the time of delivery

Gestational age (weeks)	Number of patients (n)	Percentage (%)
28-32	1	6.66
33-36	6	40
37-38	7	46.66
>38	1	6.66

Seven patients (46.66%) were booked, 5 (33.33%) were transferred from other centres, 3 patients (20%) presented to our emergency department with acute episode of heavy bleeding. Eight patients (53.33%) belonged to the age group 25 to 29 years and 9 patients (60%) were gravida 2. Twelve patients (80%) had previous history of cesarean delivery, 1 (6.66%) had previous history of D&C, 1(6.66%) had undergone myomectomy. Co-existing placenta praevia was identified in 13 patients (86.66%). Out of 15 patients with placenta accreta spectrum, 9 (60%) had placenta accreta, 4(26.66%) had placenta percreta and 2(13.33%) had placenta increta. Antenatal diagnosis of placenta accreta spectrum was made by ultrasound and confirmed by MRI in 8 patients (53.33%). Seven (46.66%) were diagnosed as having placenta accreta spectrum intraoperatively.Seven patients (46.66%) delivered between 37 to 38 weeks. Six patients (40%) delivered between 33 to 36 weeks (table 2).

Table 3: Treatment modality

Categories		Number (n)	Percentage (%)
Planned or emergency	Planned	8	53.33
	Emergency	7	46.66
Mode of delivery	LSCS	6	40
	Classical cesarean	9	60
Procedures required	Cesarean hysterectomy with internal iliac artery ligation	7	46.66
	Cesarean hysterectomy without internal iliac artery ligation	4	26.66
	Internal iliac artery ligation without cesarean hysterectomy	1	6.66
	No hysterectomy or other procedure	3	20

Eight patients (53.33%) had no complaints and they underwent planned delivery by multidisciplinary team. Classical cesarean section was done in 9 patients (60%) in view of placenta previa. Eleven patients (73.33%) required cesarean hysterectomy. Bilateral internal iliac artery ligation was done in 8 patients (53.33%) (table 3).

Table 4: Intrapartum blood loss and number of units of blood required

Parameters	Volume	Number of patients(n)	Percentage (%)
Blood loss	1-2 litres	11	73.33
	2-3 litres	3	20
	>3 litres	1	6.66
Number of units of blood required	1	1	6.66
	2	7	46.66
	3	1	6.66
	4	4	26.66
	>4	2	13.33

Approximate blood loss of 1 to 2 liters was noted in 11 patients (73.33%). Twelve patients (80%) received 2 to 4 units of blood. Two patients (13.33%) required massive blood transfusion (table 4).

Table 5: Maternal outcome

Complication	Number of patients(n)	Percentage	Booked	Unbooked
Haemorrhagic shock	8	53.33	2	6
PPH	8	53.33	2	6
ICU admission	8	53.33	2	6
DIC	2	13.33	Nil	2
Bladder injury	2	13.33	1	1
Sepsis	1	6.66	Nil	1
Death	3	20	Nil	3

Eight patients (53.33%) developed haemorrhagic shock and PPH occurred in 8(53.33%) patients. Eight patients (53.33%) needed ICU admission. Two patients (13.33%) had DIC. Complications were more common in unbooked patients operated on emergency basis. Three (20%) maternal deaths occurred in our study and all 3 patients were unbooked (table 5).

Fourteen patients (93.33%) had live births, 1(6.66%) had intra uterine death. Seven babies (46.66%) were preterm and 5 babies (33.33%) required NICU admission. One neonatal

death occurred on postnatal day 5 due to respiratory distress in preterm baby with low birth weight (table 6).

Table 6: Foetal outcome

Foetal outcome	Number of patients (n)	Percentage (%)
Live births	14	93.33
IUD	1	6.66
Preterm	7	46.66
NICU admission	5	33.33
Neonatal deaths	1	6.66

Discussion

Placenta accreta spectrum emerged as a major challenge to obstetricians over the past few years. Maternal death rates are considerably high in placenta accreta spectrum because of severe and sometimes lifethreatening haemorrhage.[4] In addition, it is related to severe maternal morbidity due to massive blood transfusion, urinary tract injuries, ICU admission, sepsis, prolonged hospital stay.[5] In our study, the incidence of placenta accreta spectrum was 0.8 per 1000 maternities. In a study conducted by HK Chaudhari et al the incidence of placenta accreta spectrum was 1.32 per 1000 pregnancies.[6] Study conducted by Morlando et al showed incidence ranging from 0.4 to 0.9 per 1000 pregnancies.[7] In our study, maximum number of patients (53.33%) belonged to the age group of 25 to 29 years and 60% were gravida 2. These observations were comparable to the observations in the study conducted by HK Chaudhari et al [6]. The most important risk factors for placenta accreta spectrum noted in our study were previous cesarean delivery (80%), placenta praevia (86.6%). In study conducted by Choudhary D et al 85% had previous history of cesarean delivery and 71% had co-existing placenta praevia.[8] The study by Fitzpatrick KE et al showed previous history of cesarean delivery in 84% of patients which was similar to that noted in our study.[9] In our study 60% of patients had placenta accreta similar to the findings observed in study conducted by Azam Begum Heena et al who reported 55.5% of patients as placenta accreta.[10] Our study showed 26.66% cases as placenta percreta and 13.33% as placenta increta.

In our study, only 7 patients (46.66%) were booked. Remaining 8 patients were transferred from other centres to our hospital as it is a tertiary care centre. Blood transfusion was required in all patients in our study. In a study conducted by Zakherah M S et al 94.7% of patients required blood transfusion.[11] In our study cesarean hysterectomy was done in 11 patients (73.33%). The recommended management of placenta accreta spectrum is planned cesarean hysterectomy with placenta left in situ as an attempt to remove the placenta is associated with severe life-threatening haemorrhage.[12] In our study average hospital stay was 10.8 days. In study conducted by Veludandi U et al mean duration of hospital stay was 6.7 days.[13] In our study, complications like PPH, DIC, ICU admission, sepsis were more common in transferred patients operated on emergency basis. Study conducted by HK Chaudhari et al showed similar results.[6] Seven patients (46.66%) had preterm delivery in our study. Ornaghi S et al reported that 51.3% had preterm delivery in their study.[14] Maternal mortality in our study was 20% which was higher than the standard reported death rate of around 7% in placenta accreta spectrum. This may be due to late referrals as all three maternal deaths were transferred patients.

Conclusion

Antenatal suspicion of placenta accreta spectrum improves maternal and foetal outcome as delivery can be planned at a tertiary care centre with multidisciplinary team support. Reduction in cesarean rate proved to be the most effective way to reduce incidence of placenta accreta spectrum. Management of placenta accreta spectrum in specialized centres reduces maternal mortality and morbidity.

Conflict of interest: None. **Disclaimer:** Nil.

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