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Morbidly Adherent Placenta

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1. Introduction

Morbidly adherent placenta is rare complication affecting 1.7 per 10, 000 women in general pregnancy population, although the incidence is rising as a consequence of rising CS rate. There is evidence that antenatal diagnosis of morbidly adherent placenta is associated with 1.45 fewer unit of blood transfusion.

Pathologically morbidly adherent placenta occurs when there is a defect in decidua basalis, resulting in abnormally invasive placentation of the placenta [1]. MAP is divided into placenta accrete (where extra villous trophoblast [EVT] directly attaches to myometrium), increta (where EVT invades into myometrium) and percreta (where EVT invades into serosa and /or adjacent structure).

Well recognised risk factors for MAP are as follow:

- Prior uterine surgery with breach of the endometrium
- Implantation of the placenta over the surgical site

Thus the commonest risk factors are prior CS anterior placenta previa [2].

Between 60 - 70% of cases are accreta. Abnormal placentation causes incomplete separation of the placenta after delivery predisposing women to massive obstetric haemorrhage with associated morbidities such as risk of hysterectomy, difficult access to fetus, infection and even maternal death [4].

Risks are increased with the extent of invasion; case fatality rate with placenta percreta have been reported to be as high as 7% [3].

Accurate antenatal diagnosis of MAP, allowing multidisciplinary management at the time of delivery, has been shown to improve maternal and fetal outcome.

The purpose of this study is to evaluate the demographic profile, high risk factors, maternofetal outcome and management options in women of morbidly adherent placenta (MAP) at our centre.

2. Aim

To evaluate the demographic profile, high risk factors, fetomaternal outcome and management options in morbidly adherent placenta (MAP).

3. Methodology

Review of 22 case records of women with MAP during year 2021–2022.

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Materials and Methods
We performed a retrospective analysis of women of MAP February 2021 through February 2022 in our institution, which is a tertiary hospital.

MAP was defined clinically or histopathologically by one of the following:

1) Heavy bleeding from implantation site after forced/piecemeal removal of placenta at caesarean section
2) Manual removal of placenta (MRP) partially or totally impossible; no cleavage plane between placenta and uterus
3) Histopathological confirmation on a hysterectomy specimen

The medical records of all the women who were diagnosed to have MAP were reviewed. Demographic data including age, parity, gestational age and previous caesarean delivery or other uterine surgery, details of medical and obstetric history and information on the intraoperative and postoperative events were recorded. In particular, from the surgery report we obtained data on placental location, estimated blood loss, blood transfusion, presence of placenta accreta, procedures needed to control bleeding. Neonatal outcomes were reviewed for birth weights, nursery admission, nursery stay and perinatal mortality. The term placenta accreta has been used where placenta was attached directly to the uterine wall with no myometrial invasion, placenta increta is used where placenta was seen invading the myometrium and percreta specifies placental invasion up to or beyond uterine serosa.

4. Results

The mean age and parity of the women was 32.1 ± 2.5 years and 3.00 respectively.100 % women had previous uterine scar, and 72.72% had placenta previa.37 % women presented with antepartum haemorrhage and 4.54 % with retained placenta.100 % women underwent hysterectomy with 45 % requiring internal iliac artery ligation, and 45 % requires bladder repair. Blood loss was between one and three litres requiring an average of six units PCV and 4 units FFP. There were no maternal deaths.81.81 %f the new - borns were preterm and the perinatal mortality was 18.18%.

22 women met the diagnostic criteria of MAP and the total number of deliveries during the study period was 5823 making the incidence of MAP, 0.377 % (1 per 264.68 deliveries) over the 12 month study period.54.54% of the women of adherent placenta were accreta, 27.27 % women were increta while percreta accounted for 18.18 % of the women.

The mean age of the women was 32.1 ± 2.5 years with three women (15 %) having age more than 35 years. The mean parity was 3.00. [table 1] Only 20 % of the women were booked with our institution. All women had previous caesarean section scar, six (27.27%) women had undergone prior curettage, but they all had history of caesarean section also. Placenta previa was associated in 16 (72.72 %) women. [Table 2]

Demographic Characteristics	(n=20)
Age group	
21 - 25	3
26 - 30	7
31 - 35	10
36 - 40	2
PARITY	
P1	0
P2	12
P3	5
P4	4
P5	1

Risk factors	**No.**
Previous 1 CS	14
Previous 2 CS	4
Previous 3CS	4
Previous CS + H/O curratage	6
Previous CS +Placenta previa	16
No risk factor	0

Twenty one of the 22 women (95.45 %) presented antenatally, one women (4.54%) presented postdelivery with retained placenta. Eight women (36.36 %) presented with antepartum hemorrhage, Eight women (36.36%) had asymptomatic placenta previa, rest of the four were asymptomatic with outside usg confirmation of placental invasion [Table 3]. One woman (4.45 %) presented with shock at7 weeks gestation. She was taken up for laparotomy after usg confirmation of scar ectopic pregnancy and per operatively placental tissue was seen invading the serosa involving the previous scar of cesarean section and histopathology of the hysterectomy specimen confirmed scar ectopic pregnancy.

Women profile

Presentation	Gestational Age	Number (n)
Placenta previa	28 - 36wk	16
Symptomatic (APH)	-	08
Asymptomatic	-	12
Shock (scar ectopic)	7WK	01
Threatened abortion	-	-
Retained placenta	Postpartum day 2	1

A provisional diagnosis of placenta accreta was made preoperatively on ultrasonography (USG) in twelve women (54.54 %), with confirmation by MRI in all seven woman; rest all had usg finding suggestive of abnormal placentation. seven women were taken up for surgery electively, all others were operated on an emergency basis.

22/22 women (100 %) underwent hysterectomy, with additional bilateral internal iliac artery (IIA) ligation in one woman in view of uncontrolled bleeding despite hysterectomy. Classical cesarean section followed by total abdominal hysterectomy was done in one of the woman. Medical management was not adopted in any of case.

Massive blood loss was the prominent feature in all the women with a mean blood loss of 2.7 l. An average of 6 units of whole blood (range 2–9) and four units of fresh frozen plasma (FFP) (range 2–021) were transfused. Bladder was injured during dissection in ten women (45 %) intraoperatively which was repaired by primary closure during procedure only.50 % of the women had to be shifted to ICU with an average stay of 2.6 days [Table4].
The maternal death rate is zero in our study.

Operative Morbidity

Average blood loss	1.2
Average transfusion	
PCV	4
FFP	3
PRC	3
CRYO	2
Bladder injury	45%
ICU TRANSFER	50%
Average ICU stay	2.6 day
Maternal death	0

Table 5 describes the neonatal outcome. The principal newborn complication was prematurity and the averages gestational age in our study was 35.2 weeks.81.81 % of the newborns were preterm with an average birth weight of 2.25 kg. The perinatal mortality was 18.18 %.

Neonatal outcome

Term: 370/7 - 416/7	18.18%
Late preterm: 340/7 - 366/7	45.45%
moderate preterm: 320/7 - 336/7	9.09%
Very preterm: 280/7 - 316/7	4.545%
Extreme preterm: <28week	18.18%

Perinatal Morbidity

NICU Admission	45.45%
Average stay	42 - 45days
Perinatal mortality	18.18%

5. Conclusion

Cesarean section and placenta previa are significant risk factors. MAP is associated with high fetomaternal morbidity and mortality.

6. Discussion

The overall incidence of placenta accreta over the 12 month study period is 0.377 % i. e.1 in 2, 64.64 deliveries showing an increasing trend. The incidence of placenta accreta in the

literature varies between 0.001 and 0.9 % of deliveries; a rate that depends on the definition adopted for accreta (clinical or histopathological diagnosis) and the population studied, and has increased dramatically over the last three decades parallel to the increase in cesarean delivery rate [4]. Collectively termed 'Placenta accreta', three variants of the condition are recognised. Accreta is the most common form accounting for approximately 54.54% of the women, increta accounts for about27.27 % of the women, while percreta comprises about 18.18% of all women [5].

Placenta previa and previous caesarean section are the two most significant risk factors in our study each associated with 72.72% and 100% of the women. Literature also refers these as the most important risk factors. Miller et al. reported a risk of 14 % in women of placenta previa with previous caesarean section, the risk increasing with the number of previous caesarean sections [6, 7]. History of curettage and grand multiparity are also quoted in literature as other important risk factors [8, 9].

The earliest gestation at which placenta accreta was encountered in our study is 7weeks which was a caesarean scar pregnancy. There are reports of women when woman was taken up for dilatation and curettage, developed torrential hemorrhage necessitating hysterectomy and pathologic examination later revealed MAP [10]. According to literature the earliest gestation at which placenta accreta has been diagnosed by ultrasound is 9 weeks in a case of scar pregnancy. The woman continued pregnancy and underwent emergency cesarean hysterectomy at 37 weeks because of placenta increta [11].

Currently the management options for MAP include conservative and extirpative approaches [12]. The conservative strategy entails leaving the placenta in situ which may be followed by medical management with methotrexate, uterine artery embolization, internal iliac artery ligation/embolization, dilatation and curettage or hysteroscopic loop resection [13, 14]. However, risk of sepsis and delayed hemorrhage is also incurred. The extirpative approach consists of immediate cesarean hysterectomy, avoiding placental removal during operation. Nonetheless extirpative management is associated with significant risk of catastrophic bleeding from abundant neovascularization and rich collaterals beyond the efficacy of hemostasis available using current surgical techniques.

Medical management with methotrexate was not given to any of th woman in the present study. Methotrexate, a folate antagonist, acts primarily against rapidly dividing cells and therefore is effective against proliferating trophoblasts. However, more recently, others have argued that, after delivery of the fetus, the placenta is no longer dividing and therefore, methotrexate is of no value. Methotrexate has been used in varying doses and routes; however, there are no randomized trials and no standard protocol regarding its dosage [15].

The woman morbidity in our study is primarily related to extensive surgery and includes massive blood transfusion, infections and urologic injury. Women with MAP had a high incidence of bleeding complications with an average blood loss of 2.7 l and as high as 9 U of blood and 21 U of blood products were transfused.

Maternal mortality in our study is zero, which is quite low as compared to the rate of 7–10 % as quoted in literature. This may be because most of the women in our study were reffered from another centers with prior diagnosis and had presented to us in a well general condition, there were many previous scans done and they had to be opened up on an elective basis and the diagnosis of adherent placenta was made prior with USG and confirmed by MRI also. This is a significant finding emphasising the role of high index of suspicion in women with known risk factors and a meticulous USG examination for accurate preoperative diagnosis. The mortality of the woman with a preoperative diagnosis of MAP was preventable and classical caesarean section without separating the placenta could have saved the woman.

To conclude, incidence of placenta accreta is increasing and previous caesarean section and placenta previa are important risk factors, so there is a need to keep the primary caesarean section rates down. Early preoperative diagnosis in the suspected women is the key to save the woman's life. Adherent placenta should be suspected even in first trimester in women with known high risk factors who are undergoing MTP or suction evacuation.

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