

Morbidly Adherent Placenta and its Demography, Morbidity, Maternal and Fetal Outcome

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Abstract: *Background: Morbidly adherent placenta, a grave complication of pregnancy is becoming an emerging cause of increased maternal morbidity and mortality. Objectives of present study were to evaluate the etiopathogenesis of MAP, its demography and clinical mode of presentation and maternal and foetal outcome with the aim to reduce maternal morbidity and mortality. Methods: It was a retrospective and prospective study at Umaid Hospital, attached to Dr. S.N. Medical College, Jodhpur in which data of patients with clinical diagnosis of MAP were reviewed from March 2017 to September 2019. Result: There were 21 cases of morbidly adherent placenta during the study period. The incidence was 0.037%(1/2661 delivery). The mean age of presentation was 27.76 year, 66.66% cases were un-booked and 33.33% cases were booked with regular ANC visit. 65% cases presented with bleeding per vagina as a chief complaint and 33% cases were admitted for elective LSCS. 33.33% cases were already diagnosed case of placenta praevia. 95.238% cases had a history of previous LSCS. 95.238% cases were given BT intraoperatively and postoperatively. 38.1% cases underwent caesarean hysterectomy, 42.85% fulfil the criteria of WHO near miss, and there was one maternal death. Conclusion: The incidence of MAP is increasing due to higher caesarean section (C/S) rate. Antenatal diagnosis via USG and colour-doppler imaging, preoperative counselling, planning and multidisciplinary approach is necessary to reduce morbidity and mortality associated with MAP.*

Keywords: Caesarean hysterectomy, Increta, Percreta, Placenta accreta

1. Introduction

There is little doubt that the worldwide caesarean delivery epidemic has led to an increased incidence of abnormally adherent and invasive placentation (AAIP). The significant impact that this disorder has on maternal morbidity and mortality has led to a flurry of publications in the world literature concerning all aspects of this condition.

The term "Morbidly Adherent Placenta" was first reported in 1885 by MacDonald to describe a case of "Partial Placenta Adhesion" which was complicated by retention of cotyledons, which he successfully treated with "opiate, ergot and brandy" [1]. This terminology then disappeared from the medical literature for 100 years. It was briefly reintroduced in 1985 to describe cases requiring postpartum hysterectomy in the management of secondary postpartum haemorrhage after caesarean section[2][3].

MAP is an abnormal invasion of placental tissue (trophoblast) into outer or inner myometrium or through the serosa of the uterus (termed as accreta, increta, percreta respectively). It is a potentially life threatening condition responsible for 7-10% of maternal mortality.[4] Morbidly adherent placenta occurs when there is partial or total absence of decidua basalis and Nitabuch layer. The incidence of placenta accreta was approximately 1 in 4027 in 1970s, 1 in 2510 in the 1980s, 1 in 533 pregnancies in 1982- 2002 and 1 in 210 in 2006. [5] Marked increase in the incidence of MAP is due to increased rate of caesarean sections. The two most important risk factors are an associated previa, a prior caesarean delivery, and more likely a combination of the two. Others risk factors are previous uterine surgery, previous dilatation and curettage, previous history of MRP, previous myomectomy, Asherman Syndrome (endometrial defects), submucous leiomyoma, advanced maternal age, multiparity etc.[6]

MAP is classified according to degree of penetration of chorionic villi and by area of placental involvement, into 3 types- Accreta, Increta and Percreta.[7]

Diagnosis of MAP requires a higher degree of suspicion and medical imaging can be an effective diagnostic tool. For this Transvaginal sonography is now well established as the preferred method for the accurate localization of a low-lying placenta. TVS is safe for patients with placenta previa, even when there is vaginal bleeding. Accuracy rates for TVS are high (sensitivity 87.5%, specificity 98.8%, positive predictive value 93), establishing TVS as the gold standard for the diagnosis of placenta.[8, 9] Proper Antenatal ultrasound can be used to establish the diagnosis and guide clinical management. Signs of accretion may be seen as early as in the first trimester and they should undergo follow-up imaging later in the second and third trimester with attention to the potential presence of placenta accrete.[10] Second and third trimester gray-scale sonographic characteristics include loss of continuity of the uterine wall, multiple vascular lacunae (irregular vascular spaces) within placenta, giving Swiss cheese appearance adjacent to the placental implantation site, lack of a hypoechoic border (myometrial zone) between the placenta and the myometrium, bulging of the placental/myometrial site into the bladder, and increased vasculature evident on colour Doppler sonography.[11]

2. Methods

This retrospective and prospective study was done in Obst/Gynae Department of Umaid Hospital, Jodhpur, Rajasthan from march 2017 to oct. 2019. The medical records of all the 21 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 accrete procedures needed to control bleeding. Neonatal outcomes were reviewed for birth weights, nursery admission and perinatal mortality.

3. Result

There were 55897 deliveries from March 2017 to September 2019; among these 21 women met the diagnostic criteria of MAP making an incidence of 0.037% (1/2661 deliveries) over 31 months' study period.

Table 1: Antenatal profile of patients

Antenatal profile	No. of Patient	Percentage
No. of patients with previous C section	20	95.23
No. of patients with diagnosed MAP in USG	7	33.33
No. of patients with diagnosed MAP in MRI	2	9.52
No. of patients with placenta previa	19	90.47

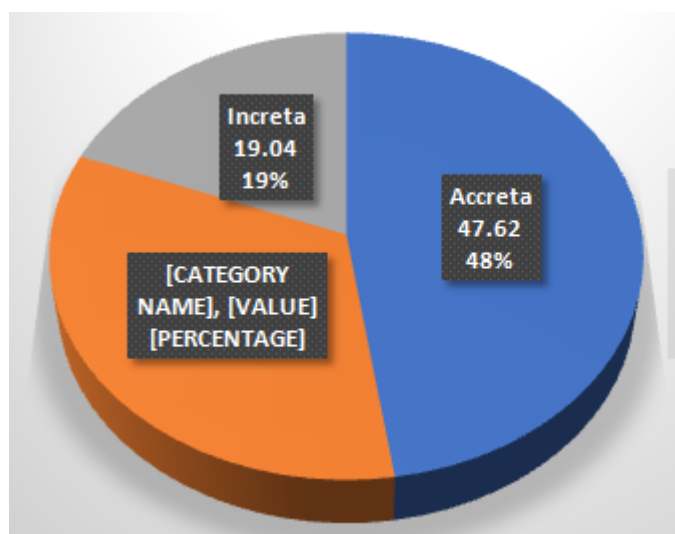
95.23% women had history of previous caesarean sections, Placenta Praevia was associated with 90.47% women. Mean age of 27.76 years with mean gravida 3.52 .

Table 2: Demographic characters

Demographic characters	No. of Patient	Percentage
Mean age	27.76 years	
Meangravida	3.52	
Un-booked	14	66.66
Booked	7	33.33
Previous 1 C-S	9	42.87
Previous 2 C-S	11	52.38

Table 3: Type of MAP

Type of MAP	No. of Patient	Percentage
Accreta	10	47.62
Percreta	7	33.33
Increta	4	19.04



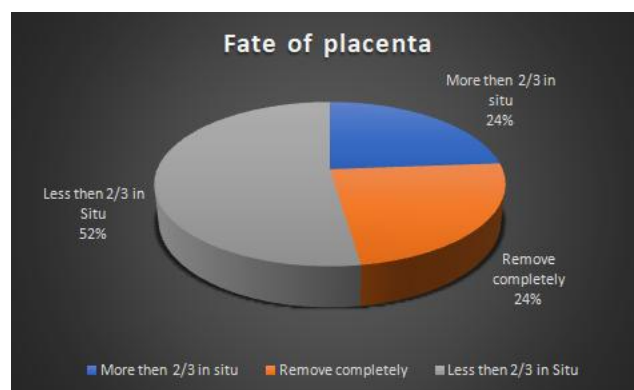
Average number of days in hospital 18.80 days and average no. days in ICU 4.5days.90.476 stay more than 7 days in hospital.

Table 4: Intervention and Morbidity.

Intervention and morbidity	No. of Patient	Percentage
Caesarean hysterectomy	8	38.1
Blood transfusion	20	95.23
FFP/Platelet transfusion	15	71.42
Internal iliac artery ligation	4	19.05
Uterine tamponade	8	38.1
NASG	9	42.85
ICU transfer	21	100
Bladder repair	3	14.28
Fistula formation	1	4.76
Scar site sepsis	1	4.76
Average No. days in ICU	4.5days	
Prolong hospital stay more than 7 days	19	90.47
Mortality	1	4.76
Near miss	9	42.85

Due to massive blood loss 95.23% cases were given Blood transfusion i.e. 1-5 units of whole blood and 71.42% were given i.e. 2-6 units of fresh frozen plasma (FFP). Due to great team work 9(42.85%) patient come in criteria WHO near miss.

In our study about 76% cases placenta was left in-situ as a conservative surgical measures out of which in 24% cases more than 2/3 of placenta placenta was left in situ, and were followed with serial ultrasound and serum B-HCG. It takes 1.5month to 3 month to become completely resolve but in some cases it takes 6 month to resolve completely. During follow up most patients came with complication of bleeding and 1 of the patient(4.76%) with complication of utero-cutaneous fistula and 1of patient have scar site sepsis.



The main new born complication was prematurity and the average gestational age in our study was 35.76 weeks. 38.09% of the newborns were preterm with an average birth weight low birth weight less than 2500gm.the perinatal mortality was 9.523.

Table 5: Neonatal outcome.

Neonatal outcome	No. of patient	Percentage
Average gestational age	35.761 weeks	
Average birth weight	2.3Kg	
Preterm newborn	8	38.095
Baby sifted to nursery	13	61.904
Perinatal mortality	2	9.523

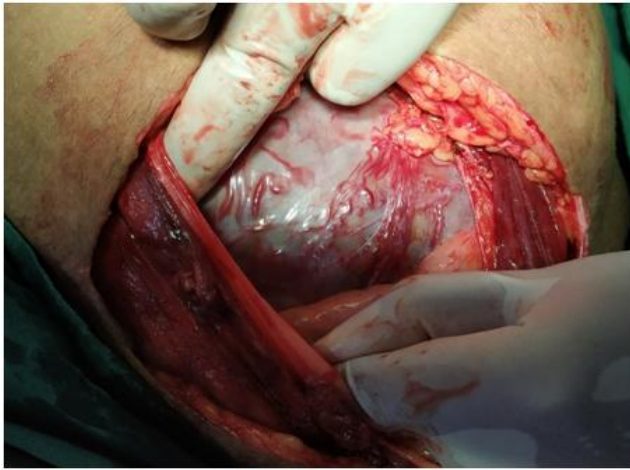


Figure 1: vascularity over lower uterine segment.

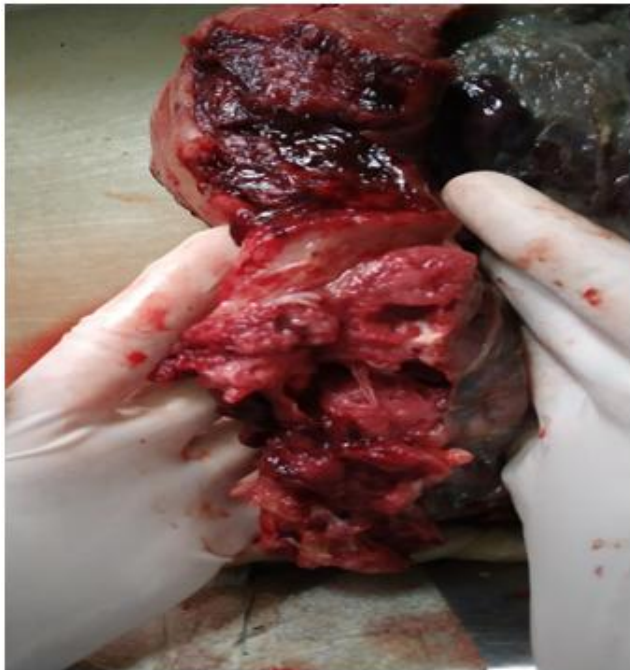


Figure 2: Hysterectomy specimen showing adherent placenta



Figure 3: Classical C-Section showing leaving complete placenta in situ

4. Discussion

Keeping a probable diagnosis of MAP helps in saving maternal live. This helps in counselling and monitoring of high risk patients for MAP on the basis of history and USG. Both grayscale ultrasound and colour Doppler examination are highly accurate in predicting the radiological patterns of placenta accreta.[12] Clinical suspicion should be raised in all women with vaginal bleeding after 20 weeks of gestation. The definitive diagnosis of most low-lying placentas is now achieved with ultrasound imaging. The UK National Screening Committee supports practice of identifying at the routine 20-week antenatal screening ultrasound scan of women whose placenta encroaches on the cervical Os. and referral of those with previous caesarean, to tertiary centre will lead to timely diagnosis.[13] Frequency of MAP in our study group was 1/2661 i.e. 0.037%. 20 patients out of 21 patients i.e. 95.23% were previous caesarean section ranging from 1 to 2. It establishes that MAP is directly related with frequency of caesarean section. Every effort should be made to reduce percent of primary caesarean section so that morbidity and mortality related to MAP can be reduced. If caesarean rates continue to increase, the annual incidence of placenta previa, placenta accreta, and maternal death will also rise substantially.[14] Women with major placenta praevia who have previously bled should be admitted and managed as in-patients from 34 weeks of gestation and delivery by 36 week or earlier if bleeding occur at well-equipped tertiary centres with good NICU backup, blood bank facility, interventional radiologist at time of delivery.[15] 38.1% women in our study group had to undergo caesarean hysterectomy, all were emergency hysterectomy however Seago et al demonstrated that planned caesarean hysterectomy in selected patients allows the surgical team to be prepared for complications to prevent morbidities with no demonstrable increase in intraoperative and postoperative complications, when compared with women who undergo hysterectomy within 6 months of caesarean delivery.[16] Robinson et al BK too cites that there is a great benefit of planned as opposed to emergent peripartum hysterectomy.[17] In mothers with placenta previa and a suspected accreta who required peripartum hysterectomy, a scheduled delivery has been associated with shorter operative times and lower frequency of transfusions, complications, and intensive care unit admissions.

The prematurity is main complication in new born and the average gestational age in our study was 35.76% weeks. 38.09 % of the newborns were preterm with an average birth weight low birth weight less than 2500gm, i.e. 2.3kg. The perinatal mortality was 9.52% so there are potential risk factor and outcome of pregnancies in patients with incidence of placenta praevia.

The multidisciplinary team including a gynaecologic surgeon experienced in pelvic surgery, vascular surgeon, a blood bank team prepared to administer multiple blood components along with a haematologist if difficulty with blood clotting develops, experienced anesthetist personnel who are skilled in obstetric anaesthesia, skilled urologists in case a bladder resection or repair might be required,

experienced intensivists for postpartum care, and an experienced neonatologist in case a baby is very premature. In cases where pelvic artery catheterizations are used, an experienced interventional radiologist is also required. Additionally, Eller et al showed that delivery at a medical centre with a multidisciplinary care team resulted in a more than 50% risk reduction for composite early morbidity among all cases of placenta accreta and a nearly 80% risk reduction.[18]

Due to massive blood loss in our study group 95.23% cases were given Blood transfusion i.e. 1-5 units of whole blood and 72.42% were given i.e. 2-6 units of fresh frozen plasma (FFP). Mean estimated blood loss during surgery was 3 to 5 litres.

Maternal mortality in our study was 4.76 %, which is comparable to the rate of 7-10 % as quoted in literature.[19] and 42.85% have in near miss result of team approach and timely actively intervention[20]. The biggest risk with accretas is severe bleeding because the placenta cannot detach properly at birth. In the short term, this can require multiple blood transfusions, cause a life-threatening blood clotting crisis, or necessitate a hysterectomy. In the long term, it can cause postpartum anaemia, difficulty breastfeeding, or even Sheehan's Syndrome (damage to the mother's pituitary gland, resulting in long-term health problems). Since major blood loss is the biggest risk of an accreta treatment of accretas usually revolves around trying to proactively prevent as much blood loss as possible. Correction of anaemia prior to expected blood loss. Blood bank preparations include arrangement of cross matched blood and component therapy. It will help to reduce maternal morbidity and mortality.

In some patients conservative surgical measures such as myometrial compression sutures with uterine balloon tamponade with intentional retention of placenta may be needed where radical procedure are not appropriate or are refused by the patient in view of desire for future fertility. These patients require serial follow up by measuring serum β -HCG and Ultrasound [21].

5. Conclusion

Early antenatal diagnosis of morbidly adherent placenta, proper counselling of patients regarding associated risks followed by well-planned caesarean section and if required caesarean hysterectomy with non-separation of placenta and adopting multidisciplinary approach is the management option to reduce maternal morbidity and mortality. Leaving placenta in situ during caesarean section and following these patients with ultrasound and serum B-HCG may help reduce complication in these cases. Diagnosed cases should always be managed at tertiary centres.

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