ORIGINAL ARTICLE

Reducing morbidity and mortality in morbidly adherent placenta: an experience

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Abstract

Objectives: To describe the methods of reducing morbidity and mortality in setting of morbidly adherent placenta.

Methods:This is an observational descriptive case series. 16 women with morbidly adherent placenta are included . The cases are assessed for antenatal diagnosis, surgical method, amount of blood loss, blood transfusion, organ injury, ICU admission, and postnatal complications. .The data was entered and analyzed on SPSS version 13.

Results:13 cases were diagnosed antenatally by ultrasound and colour Doppler. 3 of them were diagnosed during surgery, four had massive haemorrhage , had 5-10 units of blood transfusions. One of the undiagnosed case had bladder injury, 4 went to ICU and one needed ventilator support. Hysterectomy was done in 15 cases one case had conservative surgery. There was no maternal or neonatal mortality.

Conclusion: High index of suspicion, Antenatal diagnosis , anticipation of high volume blood transfusion, planned hysterectomy with fundal classical incision without disturbing placenta are methods of reducing morbidity and mortality. Morbidly adherent placenta like other obstetric emergencies is to be forewarned and to be forearmed.

Keywords: Placenta Previa, Previous Caesarean Scar, Morbidly adherent placenta, Hysterectomy

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Introduction:

The incidence of morbidly-adherent placenta (MAP), previously thought to be very uncommon, is rising in contemporary obstetrical practice and obstetricians must be cognizant of this. Massive obstetric haemorrhage, the principal clinical problem is a potentially life threatening condition associated with high morbidity and mortality of upto 10% of patients[1]. Previously thought to be very rare, the incidence of placenta accreta has increased ten-folds in the past 50 years and now occurs with frequency of one per 2,500 to one per 110 deliveries[2,3]. Rising cesarean section rate and short interval bwteen caesarean section and conception is a major contributing factor.

The exact etiology is unknown, but it has been postulated to the damage of decidua basilis which allows for placental invasion into myometrium. The barrier function of the decidua is absent in this scenario, and the invasive trophoblast may invade the myometrium upto varying depths, from the most superficial (placenta accrete) to deep myometrium (placenta increta) with breaching of uterine serosa (placenta percreta) and possibly invasion into adjacent organs. By the amount of placental involvement 3 types are described namely focal adherence- when part of the cotyledon is involved, partial adherence – when more than one cotyledon is involved and total adherence – when whole placenta is involved. There are several risk factors which includes placenta previa, prior cesarean section, prior myomectomy, asherman syndrome, and maternal age more than 35 years[2,4].

The diagnosis of morbidly adherent placenta

includes high degree of suspicion especially in placenta previa with or without prior cesarean section. During pregnancy MAP may be either asymptomatic or may present with antepartum haemorrhage, abdominal pain and acute abdomen, while intrapartum it may present as retained placenta, post-partum hemorrhage or uterine rupture. Adherent placentas remains a greatest challenge in obstetrics[5]. The highest risk to mother is at the time of placental separation resulting in severe hemorrhage, disseminated intravascular coagulation, massive blood transfusion and sometimes death. [6] Successful management of this potentially catastrophic condition requires early antenatal diagnosis and referral to a tertiary institution where multidisciplinary expertise in anesthesia, diagnostic radiology, hematology, and blood transfusion services are available. There is therefore need for reliable antenatal diagnosis, since such a condition when encountered unexpectedly at delivery, will invariably lead to high morbidity and mortality. Ultrasound and color Doppler has brought a revolution in antental diagnosis and management of these cases with reduced morbidity. Grey scale ultrasound has a sensitivity of 93% and specificity of 79%[7] whereas color Doppler has sensitivity of 84%- 100% and specificity between 92% and 96. 8%[8] diagnostic criteria included more than one of the following.

Placental lacunae giving placenta a moth eaten appearance.

Obliteration of clear space between uterus and placenta

Interruption of bladder border.

Myometrium of less than 1mm. [10]

Successful management of adherent placenta includes early antenatal diagnosis planned surgery in highly equipped centre with multidisciplinary expertise. We aim to describe the methods of reducing morbidity in adherent placentas through this study and antenatal diagnosis is of prime importance among them.

Materials and methods:

This is an observational study conducted in Hamdard University Hospital over a period of four years. A total of 16 patients with the diagnosis of adherent placenta were included. All patientswho came with placenta previa and previous cesarean delivery were scanned in the antenatal period by ultrasound and when diagnosed as adherent placenta, it is confirmed by color Doppler scan, and later on reconfirmed on surgery and histopathology (hysterectomy specimen). These cases were planned for radicle surgery after taking informed consent for hysterectomy. Urologist and expert anesthetist were available and ICU was arranged before surgery. 4-5 units of packed cells were arranged and lab was informed of the possibility of need of fresh frozen plasma and platelets. A team of senior consultants took the patients in theatre. In remaining 3 cases the antenatal diagnosis was missed, thus had high morbidity. 2 had hysterectomy and in one case conservative surgery was performed. The data was entered and analyzed on SPSS version 13.

Results:

A total of 16 patients with adherent placenta were included in the study. 13 patients were diagnosed in antenatal period with ultrasound and Doppler scan. These cases were confirmed later on by histopathology specimen of uterus. Remaining 3 cases were diagnosed during surgery and thus high morbidity was not anticipated. Out of 16 adherent placentas 14 were accreta, 1 percreta and 1 increta was found on histopathology. Parity of mothers and prior cesarean section is given in table 1. Previous cesarean section and Placenta previa was the most significant risk factor found in our case series. One case of fundal placenta was found adherent. There were 8 patients with previous one scar, 4 with previous 2 scar, 1 with previous 3 and 2 patients had

Table 1: *Demographic characteristics of women with adherent placentas (n=16)*

Mean age in years	26.0 ± 4.1
Parity median (range)	3 (0-6)
Mean gestational age in weeks	36± 2.6
Previous cesarean section (mean)	2
Placenta previa (percent)	15 (93%)
Diagnosed in antenatal period	13 (82%)
Undiagnosed in antenatal period	3

± *Standard deviation*

Table 2: *Outcome measures*

	Antenatal Diagnosed Cases 13	**Undiagnosed Cases 3**
	Planned Hysterectomy 13	Hysterectomy / Conservative 2/1
Blood loss	2-4 litres	6-8 litres
Blood transfusions	4 pints average	8 pints average
ICU admission	1	3
Ventilatory support	Nil	1
Disseminated intravascular coagulation	1	2
Post operative complications	Nil	2
Hospital stay	6 days	10 days

previous four cesarean section. Three cases in which antenatal diagnosis was not made came as unbooked cases, one presented with antepartum hemorrhage and 2 with acute abdomen.

In planned cases abdomen was opened by subumblical midline incision, increased vascularity and thinning of lower uterine segment appreciated, fetus was delivered through midline classical incision on fundus of uterus. Placenta was not separated nor touched. hysterectomy was proceeded. Bladder was carefully dissected down. In one case of placenta percreta bladder was damaged during dissection and patient had massive haemorrhage. She was given 6 units blood transfusion and 4 FFPs. Bladder was repaired by urologist and total hysterectomy was done. In five cases subtotal hysterectomy was done due to technical difficulty. All cases of planned hysterectomy did not require more than 4 blood transfusions except percreta. Estimated blood loss was 2-2.5 litres. one of them went to ICU and one had bladder injury. Total hospital stay was 5-8 days. Secondary haemorrhage and vault infection was not found in any case. (Table 2)

Three cases which were not diagnosed in antenatal period and came in emergency, abdomen was opened by pfennensteil incision with transverse incision in lower uterine segment cutting through placenta to deliver baby. In one case placenta was fundal. there was massive hemorrhage while removing placenta in piecemeal. 2 of them went into DIC with blood loss 6-8 litres. 8-10 units of blood were transfused during hysterectomy, 4 FFPs and one mega platelet transfusion. One with fundal placenta had focal accreta which bled about 2-4 litres, 6 blood transfusions were given and conservative surgery was performed for future fertility. Balloon tamponade was done successfully with three large size foleys catheter and continuous oxytocin drip for 24 hours. After removing tamponade there was no active bleeding. All three patients went to ICU, one had ventilator support. one had bladder injury, one vault hematoma managed conservatively. Hospital stay was 10-12 days.

Discussion:

This study describes our experience of the methods of reducing morbidity and mortality in cases of morbidly adherent placentas. Successful management of this potentially catastrophic condition requires antenatal diagnosis and referral to a tertiary care centre where multidisciplinary expertise, blood transfusion facilities and intensive care units are available. The most recent Confidential Enquiry into Maternal deaths in UK stresses that all cesarean sections performed in women with placenta previa and previous section should be conducted by consultant obstetrician, should involve multidisciplinary personal as haematologist, urologist, interventional radiologist, vascular surgeon, anaesthetist in tertiary centre with facilities for high volume blood transfusion and invasive monitoring (RCOG guidelines 2005). Particular consideration to be given to the anticipation and management of of massive haemorrhage including availability of packed cells, platelets, fresh frozen plasma, cryoprecipitate, whole blood and a cell saver. It is important to recognize that it is the early replacement of blood and blood products to prevent disseminated intravascular coagulation that improves patient outcome.

Our experience shows that high index of suspicion is required in placenta previas with or without cesarean sections as we found this relationship in 93% of our cases with adherent placenta. A 2004 series, describing 32 cases over five years, demonstrated that 88% of placenta accreta were associated with placenta praevia, 78% had a his-

tory of previous caesarean birth. [4]

Literature suggests that reliable antenatal diagnosis is the key factor to success[10] where color flow Doppler is the gold standard in diagnosing MAP[9], since such a condition when encountered unexpectedly at delivery, will invariably lead to massive blood loss, as in our case series the undiagnosed cases had 6-8 litres blood loss, went into DIC, required Invasive monitoring and had more complications. After diagnosis the women with adherent placenta should be counseled of merits and demerits of various surgical options.

Traditional management is cesarean hysterectomy and prompt undertaking has reduced the morbidity and mortality to less than 2%[15] as in our case series. We favour hysterectomy for accreta and increta where there is no extrauterine invasion with delivery of fetus through classical, fundal, or high transverse incision avoiding incision of placenta: thereafter, the placenta may either be removed or left attached to uterus and removed as a part of hysterectomy. This method significantly decreases blood loss and morbidity and also supported by many authors in literature[11], A retrospective study by Yap et al showed that placental removal before hysterectomy resulted in increased maternal morbidity[12,13]. A recent review also advised against attempts at placenta removal before hysterectomy[14].

Hysterectomy although life-saving if timely attempted but the resultant loss of fertility is devastating if patient is young, secondly morbidity is high if it is percreta. For this reason conservative approach has been proposed. Conservative management involves leaving placenta in situ, this may be complemented by bilateral embolisation of uterine arteries, parenteral methotrexate or both. Balloon occlusive devices can be placed in both internal iliac arteries before surgery by an interventional radiologist. The placenta left in situ decreases in size on 5th postoperative day and followed up by ultrasound Doppler, no placental tissue left on 20 weeks as described by Edwin[16]. Conservative management of placenta accreta and intcreta is now an acceptable and reliable alternative to radicle surgery. Uterine artery embolization before delivery or in operating room is successful in controlling postpartum haemorrhage. Similarly balloon temponade can be used successfully to reduce bleeding from placental bed as we used in one of our case.

This case series clearly describes the high morbidity associated with undiagnosed adherent placentas in antenatal period resulting inmassive haemorrhage due to piecemeal removal of placenta, whereas in diagnosed cases placenta was left attached to uterus, planned hysterectomy was done with controlled bleeding thus morbidity is reduced.

Conclusion:

In conclusion high index of suspicion, early antenatal diagnosis, planned surgery at well -equipped centre with multidisciplinary expertise, and invasive monitoring, anticipation of high volume blood transfusion, delivery of neonate with classical or fundal incision without manipulating placenta are the key steps to reduce morbidity and mortality in morbidly adherent placentas. The decision to perform hysterectomy or conservative management needs to individualized. Good anticipation and timely decision is the key to success as adherent placentas like other obstetric emergencies to be forewarned is to be forearmed.

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