ORIGINAL ARTICLE

MANAGEMENT AND MATERNAL OUTCOME IN MORBIDLY ADHERENT PLACENTA

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ABSTRACT

Objective — *To describe the management and maternal outcome in diagnosed cases of morbidly adherent placenta.*

Study design — *Descriptive case series.*

Place & Duration of study — *Hamdard University Hospital & Two private hospitals, from May 2005 to June 2009.*

Patients and Methods — *All diagnosed cases of morbidly adherent placenta were analyzed. The cases were managed by elective caesarean hysterectomy and non separation of placenta at delivery. Amount of blood loss, blood transfused, ICU admission, postnatal complications and hospital stay were recorded.*

Results — *Thirty cases of morbidly adherent placenta diagnosed on doppler ultrasound scan were identified. Scheduled caesarean hysterectomy without attempting placenta removal, was done. Sub total hysterectomy was performed in 26 cases and total hysterectomy in remaining 4 cases. Two patients sustained urinary bladder injury and two went into DIC. One needed ventilatory support. No patient died in this series. Significantly reduced maternal morbidity was observed.*

Conclusion — *In diagnosed cases of morbidly adherent placenta, antenatal diagnosis and avoidance of placental separation and caesarean hysterectomy results in better maternal outcome.*

Key words — *Morbidly adherent placenta, Maternal outcome, Cesarean hysterectomy.*

INTRODUCTION:

Morbidly adherent placenta (MAP) is defined as the abnormal adherence either in whole or in part of the placenta to the underlying uterine wall. It is classified according to the degree of adherence and by the amount of placental involvement into 3 types as placenta accreta - chorionic villi adherent to superficial myometrium, placenta increta - chorionic villi involving myometrium and placenta percreta - chorionic villi penetrating full thickness myometrium and involving serosa. By the amount of placental involvement 3 types 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, are described.

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Morbidly adherent placenta is a life threatening complication of pregnancy. According to the American College of Obstetrics and Gynecology its incidence is 1:2500 per delivery.[1] Morbidly adherent placenta in association with placenta praevia and previous caesarean section delivery is a condition of increasing clinical significance because of the increasing caesarean section rate world wide. Recent reports suggest a frequency per delivery between 1:2500 and 1:110.[1-3] It has risen to 10 fold in the past 50 years.[1] During pregnancy MAP may be either asymptomatic or may present with antepartum

hemorrhage, abdominal pain and acute abdomen, while intrapartum it may present as retained placenta, postpartum haemorrhage (PPH) or uterine rupture. MAP remains the greatest challenge in modern obstetrics.[6] The maternal risk appears to occur at the time of placental separation resulting in severe hemorrhage, disseminated intravascular coagulation (DIC), massive blood transfusion requirement, need for intensive care, hysterectomy and occasionally maternal death.[4-6] It is essential that MAP should be diagnosed earlier and adequate preoperative measures should be taken to reduce its high morbidity and mortality. With the advent of radiological facilities of doppler ultrasound and MRI, antenatal diagnosis has brought revolution in the management of these cases. The colour doppler ultrasound criteria used for the diagnosis of MAP includes,[8-11]

i) Thinning of anterior lower uterine segment of less than 1mm.
ii) Lacunae vascular spaces (Swiss cheese appearance) and interparenchymal placental lacunar flow.
iii) Extension of placental tissue beyond uterine serosa and bladder uterine serosa hypervascularity.
iv) Prominence of subplacental venous complexes.

Successful management of MAP includes antenatal diagnosis and pre operative preparation by a multidisciplinary team. Advances in antenatal diagnosis has led to significant improvement in maternal outcome with MAP.[7] The aim of this prospective study was to analyze the maternal outcome of antenatally diagnosed cases of MAP managed by non separation of placenta and elective caesarean hysterectomy.

METHODOLOGY:

This was a case series conducted at Obstetrics Departments of Hamdard University Hospital, Imam Clinic and Mamji Hospital Karachi from June 2005 till May 2009. Women who delivered in second and third trimester with a diagnosis of morbidly adherent placenta were included. In all cases confirmation of MAP was done by color doppler ultrasound, clinical observation and histopathology. Risk factors for MAP including previous uterine surgeries and placenta praevia were recorded.

All patients after antenatal diagnosis of MAP were planned for elective caesarean section with consent for caesarean hysterectomy. Urological surgeon was informed for immediate help at the time of surgery. All cases were delivered at term except two who presented in 2nd trimester with labor pains and antepartum homorrhage. During management of these cases blood loss, need of ICU admission, operative interventions done (hysterectomy, re laparotomy) and length of hospital stay were noted. Data analysis was performed with the help of computer software SPSS 13 version. Frequencies, means and standard deviations were calculated.

RESULTS:

Thirty women with MAP were studied. All cases were antenatally diagnosed by color doppler scan and confirmed by histopathology .Three cases were placenta percreta, six were placenta increta and 21 placenta accreta. Clinical details are listed in table I. There were five women with previous one caesarean section, 7 had previous two caesarean sections, eight were with previous 3 caesarean sections. Seven patients had type II anterior placenta praevia, 8 had type III anterior placenta praevia and 15 had type IV central placenta praevia.

Midline subumbilical incision was made and lower uterine segment and bladder inspected for extensive vascularity and thinning of lower uterine segment. Delivery of the infant was effected by midline classical incision in the fundus and anterior uterine wall of upper segment and placenta were left unseparated. Cord was clamped and cut near the placental insertion and tied with silk. Oxytocin was avoided. Upper segment incision was closed by catgut 2 suture. Bladder was then dissected carefully by blunt and sharp dissection taking care that the large vessels coming in the way were ligated form both ends. Sub total hysterectomy was performed in 26 cases and total hysterectomy in remaining 4 cases. Placental sinuses were opened up during dissection of bladder in two cases of placenta percreta leading to severe PPH and subsequent DIC. In one of these 2 cases bladder injury occurred. Approximate blood loss was between 2 liters to 6 liters.

Two patients who went into DIC needed 20 pints of blood, 20 FFPs and 2 mega platelet transfusion. One of the cases of placenta percreta with DIC continued to bleed intraperitoneally and needed re-exploration and activated factor VII (Novo seven) to arrest bleeding. Eighteen patients were shifted to ICU for hemodynamic monitoring and further treatment. One patient needed ventilatory support for 24 hours. Average hospital stay was 7 days. Vault infection, secondary hemorrhage and

Table I: Patients Demographic Characteristics

Maternal age	27-38 years (mean 33.87 years)
Gravidity	2-7 (mean 4)
Parity	1-6 (mean 3)
Gestational again(weeks)	Mean 35

intestinal obstruction occurred in one patient whose hysterectomy was perfomed in emergency at 2nd trimester. No maternal mortality occurred.

DISCUSSION:

Etiology of morbidly adherent placenta is unknown. It is postulated to be related to the damage of the decidua basalis, which allows placental invasion into the myometrium.[3] There are several risk factors for placenta accreta that include placenta praevia with or with out previous caesarean section and previous uterine surgery. Clark et al observed an increased incidence of placenta praevia after caesarean section from 0.26% in women with a normal uterus to 0.65% after one and up to 10% after 4 or more caesarean sections.[5] Some studies reported that risk of placenta accreta increased to 39% for those who had previous 2 cesarean section.[2] About 75% of morbidly adherent placenta are associated with placenta praevia. In the presence of both the risk factors, previous caesarean section and placenta praevia, obstetricians must have a high index of suspicion for placenta accreta.[7] All of our patients with MAP had one or more previous caesarean sections.

Morbidly adherent placenta is associated with a maternal mortality reportedly as high as 10% and significant maternal morbidity, including massive hemorrhage, DIC, hysterectomy, bladder and ureteric trauma, ARDS and acute tubular necrosis.[16] In view of the rising incidence of this complications there is a need to diagnose it in the antepartum period.[15] The imaging modalities of ultrasonography and MRI play an important role especially in patients who have the above mentioned risk factors.[9-12] Color doppler ultrasound is useful in demonstrating placental blood flow into the bladder interface. The most common site for placenta accreta is anterior lower uterine segment. This allows ultrasound transducer to evaluate this area with optimal resolution due to its superficial location.[13,14] We screened the high risk population with placenta praevia and previous cesarean sections by color dopper ultrasonography and subsequently confirmed it on clinical grounds and histopathology.

A recognition of the high morbidity and mortality associated with morbidly adherent placenta, a multidisciplinary approach is recommended. The interventional radiologist, the anesthetist, the hematologist, the neonatologist and an experienced consultant obstetrician play crucial role. Particular considerations should be given to the anticipation and management of massive hemorrhage, including availability of pack cells, platelets, fresh frozen plasma, cryoprecipitate etc.

The most influential variable on maternal outcome is not attempting to remove the placenta. A retrospective study by Yap et al showed placental removal before hysterectomy resulted in increased maternal morbidity.[17,18] A recent review also advised against attempts at placenta removal before hysterectomy.[19] Antenatal diagnosis, scheduled cesarean hysterectomy with out attempts at placental removal reduce maternal morbidity as seen in our study. Fundal incision for delivery of the infant allows non separation of placenta and consequently less postpartum hemorrhage.

Hysterectomy has traditionally been advised in the management of placenta accreta but there has been a recent movement towards conservative management and preservation of fertility. Strategies include leaving the placenta after caesarean delivery with surgical uterine devascularization, embolization of the uterine vessels, uterine compression sutures and / or over sewing of the placental vascular bed.[20] A conservative approach was first described by Arulkumarran and collegues in 1986 by using systemic methotrexate.[21] Severe intrauterine infection and life threatening hemorrhage can occur requiring emergency hysterectomy, thus such patients should be carefully monitored and extensively counseled regarding risks.[22]

CONCLUSIONS:

Antenatal diagnosis and scheduled caesarean hysterectomy without attempting to remove the placenta before hysterectomy and associated with decreased maternal morbidity. Further studies are needed to identify optimal management strategies for this increasing morbid condition.

REFERENCES:

1. Gielchinsky Y, Rojansky N, Fasouliotis ST, Ezra Y. Placneta accreta – summary of 10 years: a survey of 310 cases. Placenta 2002;23:210-4.

2. ACOG committee on obstetric practice ACOG committee opinion number 266 January 2002 planenta accreta. Obstet Gynecol 2002;99:169-70.

3. Morken NH, Henriksen H. Placenta percreta two cases and review of the literature Eur J Obstet Gynecol Reprod Biol 2001;100:112-5.

4. Wu S, Kocherginsky M, Hibbard Jll. Abnormal placentation twenty year analysis. Am J Obstet Gyaecol 2005;192:1458-61.

5. Clark SL, Koonings RP, Phelan JP. Placenta praevia accrete and prior cesarean section. Obstet Gynecol 1985:66:89-92.

6. Usta IM Hobeika EM, Musa AA et al. Placenta previa-accreta: risk factors and complications. Am J Obstet Gynecol 2005;193:1045-9.

7. Placenta previa and placenta accreta diagnosis and management RCOG guideline no 27, 2005.

8. Finberg HJ, Williams JW. Placenta accreta prospective sonographic diagnosis in patients with placenta previa and prior caesarean section J Ultrasound Med 1992; 11:333-43.

9. Comstock CH, Love JJ Jr, Bronsteen RA et al, Sonographic detection of placenta accreta in the second and third trimester of pregnancy. Am J Obstet Gynecol 2004;190:1135-40.

10. Twicker DM, Lucas MJ, Balis AB et al. Color flow mapping for myometrial invasion in women with a prior caesarean delivery. J Matern Fetal Med 2000;9: 330-5.

11. Wong HS, Chung YK, Strand L et al. Specific sonographic features of placenta accreta tissue interface description on grayscale imaging and evidence of vessels crossing interface disruption sites on doppler ultrasound. Ultrasound Obstet Gynecol 2007; 29:239-41.

12. Chou MM, Lee YH. Prenatal diagnosis of placenta previa, accreta by transabdominal color Doppler. Ultrasound. Obstet Gynecol 2000;15:28-35.

13. Warshak CR, Eskander R, Hull AD et al. Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of placenta accreta. Obstet Gynecol. 2006;108:573-81.

14. Wong HS, Zuccollo J, Straw L et al. The use of ultrasound in assessing the extent of myometrial involvement in partial placenta accreta. Ultrasound Obstet Gynecol 2007;30:277-30.

15. Ramos GA, Kelly TF, Moov TR. The importance of preoperative evolution in patients with risk factors for placenta accreta. Obstet Gynecol 2007;109:75.

16. Silver LE, Hobel CJ. Lagasse L et al. Placenta previa percreta with bladder involvement new considerations and review of the literature. Ultrasound Obstet Gynecol 1997;9:131-8.

17. Shukenami K, Hottori K, Nishijima K, Kotsuji F. Transverse fundal uterine incision in a patient with placenta increta. J Matern Fetal neonatal Med 2004;16: 355-6.

18. Yap YY, Pervin LC, Pain SR, Wong SF, Chan FY. Manual removal of suspected placenta accreta at caesarean hysterectomy. Int J Gynecol Obstet 2008;100:186-7.

19. Oyelese Y, Smulian JC. Placenta previa placenta accreta and vasa previa. Obstet Gynecol 2006;107:927-41.

20. Ojala K, Perala J, Karinuemi J, Ranta P, Raudaslosi T, Tekay A. Arterial embolization and prophylactic catheterization for the treatment of severe obstetric haemorrhage . Acta Obstet Gynecol Scand 2005;84:1075-80.

21. Arukumaran S, Ng CS, Ingemasson I, Ratnam SS. Medical treatment of placenta accreta with methotrexate. Acta Obstet Gynecol Scand 1986;65:285-6.

22. Eller AG, Porter TF, Soisson P, Silver RM. Optimal management strategies for placenta accreta. Br J Obstet Gynecol 2009;115:648-54.