

Clinical Profile of Morbidly Adherent Placenta

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Abstract: Background & Objectives: To present our experience of antenatally diagnosed morbidly adherent placenta and the success of the conservative management of morbidly adherent placenta in preserving the uterus and also in decreasing the maternal morbidity. Methods: Morbidly adherent placenta was diagnosed antenatally by ultrasound doppler. The women were followed till delivery. Treatment strategies ranged from a caesarean hysterectomy to leaving the placenta in situ with or without internal artery ligation/uterine artery embolisation and/or methotrexate therapy. Eleven cases of morbidly adherent placenta were managed successfully conservatively by leaving the placenta in situ followed by uterine artery embolisation and methotrexate therapy. The patients were followed with ultrasound doppler examination and serum beta-human chorionic gonadotrophin (β -hCG) level. Evacuation was done with complete removal of the placental tissue. Results: Morbidly adherent placenta was diagnosed antenatally by ultrasound doppler in 29 patients. History of previous one caesarean was present in 16 (55.1%) and two or more in 7 (24.1%), previous abortion in 4 (13.7%) and previous vaginal delivery in 2 (6.8%) women. Placenta was partially separated in 10 (34.4%) and retained in 11 (37.9%). 8(27.5%) women underwent emergency obstetric hysterectomies in whom the histology confirmed the diagnosis. 11 (37.9%) cases were managed successfully conservatively by leaving the placenta in situ with uterine artery embolisation and methotrexate therapy. Conclusions: Prenatal imaging may be very useful in antenatal diagnosis of adherent placenta. Efforts to minimize blood loss, planning the type of surgery, selective arterial embolization and uterine and/or hypogastric artery ligation, leaving the placenta in situ without attempts to remove and postpartum management with methotrexate therapy is more acceptable option in selected cases. [Shweta G NJIRM 2017; 8(3):36-40]

Key words: Caesarean, caesarean hysterectomy, conservative management, embolization, methotrexate, morbidly adherent placenta, placenta accreta, placenta percreta

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Introduction: Placenta accreta and percreta are life threatening conditions in modern obstetrics especially due to the rising caesarean section rates. It is caused by the defect in the deciduas basalis resulting in an abnormally invasive placental implantation¹. Histologically, placenta accreta is identified by trophoblastic invasion of the myometrium in the absence of intervening deciduas. The spectrum includes invasion of the superficial myometrium (accreta), invasion into deeper myometrial layers (increta), and invasion through the serosa and/or adjacent pelvic organs (percreta)².

Treatment strategies range from a caesarean hysterectomy to leaving the placenta in situ with or without internal artery ligation/uterine artery embolisation and/or methotrexate therapy. We describe the success of conservative management of morbidly adherent placenta in preserving the uterus and also in decreasing the maternal morbidity.

Objectives: To study the clinical profile of antenatally diagnosed morbidly adherent placenta. To present our experience in the success of conservative

management of morbidly adherent placenta in preserving the uterus.

Methods: This study was conducted in the department of Obstetrics and Gynaecology of Dayanand Medical College & Hospital, Ludhiana after obtaining approval from the ethical committee. It included women who were diagnosed antenatally with morbidly adherent placenta by ultrasound Doppler and/or MRI if required. The women were followed till delivery.

Treatment strategies ranged from a caesarean hysterectomy to leaving the placenta in situ with or without internal artery ligation/uterine artery embolisation and/or methotrexate therapy. The women who were managed conservatively by leaving the placenta in situ underwent uterine artery embolisation postoperatively and received adjuvant methotrexate therapy as 1mg/kg single intramuscular injection on post operative Day 5. The patients were followed with ultrasound doppler examination and serum beta-human chorionic gonadotrophin (β -hCG)

level. Evacuation was done with complete removal of the placental tissue.

Results: A total of 3765 deliveries were conducted in the study period (2013-15) in the department of Obstetrics and Gynaecology; out of which 1765 (46.87%) were caesarean deliveries.

Morbidly adherent placenta was diagnosed antenatally by ultrasound doppler in 29 patients (0.7%) of whom 12 (41.3%) had placenta praevia. 5 (17.2%) patients had additional MRI for confirming the diagnosis. History of previous one caesarean was present in 16 (55.1%) and two or more in 7 (24.1%), previous abortion in 4 (13.7%) and previous vaginal delivery in 2 (6.8%) women.

Preoperative bilateral uterine artery balloon cathetrization was done in 22 (75.8%) women to allow uterine artery embolization postoperatively when needed. Classical upper segment caesarean section was done in 5 (17.2%) women with central placenta praevia. Placenta was partially separated in 10 (34.4%) and retained in 11 (37.9%). Bladder invasion was observed in 5 (17.2%) women. 8(27.5%) women underwent emergency obstetric hysterectomies in whom the histology confirmed the diagnosis. Bilateral hypogastric artery ligation was done in 7 (24.1%). 11 (37.9%) cases of morbidly adherent placenta were managed successfully conservatively with uterine artery embolisation and methotrexate therapy followed by evacuation and complete removal of the placental tissue.

Discussion: The morbidly adherent placenta (accreta, increta, and percreta) has emerged as a significant obstetric challenge over the last decade. Once a rare diagnosis, it now complicates as many as 1 per 500 pregnancies³. This disease has a maternal mortality of up to 7% depending on location⁴. Predelivery knowledge of morbidly adherent placenta allows for multidisciplinary planning and delivery before the onset of labor and/or vaginal bleeding⁵. This approach has lowered overall maternal morbidity rates, including less blood loss, as well as fewer transfusion requirements and intraoperative urologic injuries^{6,7}.

Clinical risk factors include placenta previa and prior uterine surgery, including caesarean delivery. The combination of previous caesarean section and an anterior placenta praevia should raise the possibility

of a placenta accreta. 25% to 50% incidence of placenta accreta has been observed in patients with placenta previa and prior caesarean delivery⁸. History of previous one caesarean was present in 55.1% and two or more in 24.1% women; 17.2% women had central placenta praevia in our study.

We observed a caesarean section rate of 46.8% during the study period. Ours is a tertiary care institution frequently receiving high risk and complicated cases. An upward trend of the caesarean section rates have been observed by many authors of modern obstetrics^{9,10}. Wu S³ stated that the increased incidence of placenta accreta seems to parallel the increasing caesarean delivery rate.

Accurate prenatal diagnosis of placenta accreta is vital because this abnormality is an important cause of significant haemorrhage in the immediate post-delivery period with resultant maternal and fetal morbidity and mortality. Prenatal diagnosis of placenta accreta has historically been difficult. The accuracy of sonography using gray scale and color Doppler techniques for prenatal diagnosis of placenta accreta varies widely in different studies^{11,12}.

Its sensitivity has been reported as anywhere between 33% and 100%, and the specificity also varies widely. According to one study, ultrasound has the sensitivity of 89.5%, positive predictive value of 68% and negative predictive value of 98% for the diagnosis of placenta accreta¹³. We diagnosed adherent placenta in all 29 women by an antenatal ultrasound and Doppler study; in 17.2% women additional MRI was needed for confirmation of diagnosis.

Multiple sonographic findings are seen with placenta accreta such as decrease in myometrial thickness, placenta previa, placental lacunae, abnormal pattern of color Doppler, loss of the retroplacental clear zone and placenta percreta irregularities in wall of urinary bladder¹⁴.

More recently, MRI, with and without gadolinium, has been explored as a modality for further improving the prenatal diagnosis of placenta accreta. MR imaging is used in the diagnosis of placenta accreta when the sonographic findings are equivocal or when the placenta has a posterior or lateral location. Many advantages are found for using MRI included excellent soft tissue contrast and non ionizing radiation in

comparison with some limitations such as high cost, claustrophobia and limited availability¹⁵. The most MRI characteristic findings seen in placenta accreta are nodular thickening in the dark zone of placenta-uterine interface together with extensions of dark bands through the placenta, outer uterine bulge causing from the mass effect of the placenta and heterogeneous signal intensity of placenta on the T2-weighted HASTE sequences due to large placental lakes and vessels¹⁶.

In spite of many studies having suggested the diagnostic accuracy of MRI in placenta accreta, some studies suggest that MRI is no more sensitive than ultrasound in the diagnosis of placenta accreta¹³. Dwyer concluded that both sonography and MRI have fairly good sensitivity for prenatal diagnosis of placenta accreta. In the case of inconclusive findings with one imaging modality, the other modality may be useful for clarifying the diagnosis¹⁷.

Placenta accreta is associated with considerable maternal morbidity and mortality. Classical upper segment caesarean section was done in 17.2% women in our study who had central placenta praevia. Bladder invasion was observed in 17.2% women. 27.5% women underwent emergency obstetric hysterectomies. Bilateral hypogastric artery ligation was done in 24.1% women. Though the surgical approach of hysterectomy is a definitive therapy, there are occasions when conservation of the uterus is desired. Several case reports indicate that uterus preserving treatment may result in successful management of invasive placentation. In the current literature, different uterus preserving treatment modalities are described: expectant management, embolization of the uterine arteries, methotrexate therapy and uterus preserving surgery¹⁸⁻²⁰. Preoperative bilateral uterine artery balloon cathetrization was done in 75.8% women in our study to allow uterine artery embolization postoperatively when needed.

Tong, Tay, Kwek pioneered the conservative management of morbidly adherent placenta by systemic administration of methotrexate. The outcome varies widely ranging from expulsion at 7 days to progressive resorption in roughly 6 months. As of now, there are no accepted protocol regarding dose and duration of methotrexate as only limited experience is available in literature. The prognostic

implications of decreasing serum b-hCG levels following administration methotrexate are better described in the setting of ectopic pregnancy. For placenta accreta, it is not clear whether decreasing levels correlate with the rate of involution of placental tissue. A reduction of placental size due to decreased utero placental vascularity eventually resulting in decrease and disappearance of the placental tissue after systemic administration of methotrexate has been observed by many authors^{21,22}.

In 2007, Timmermans et al²⁰ reviewed 48 case reports about the obstetric outcome after expectant management, embolization of the uterine arteries and methotrexate therapy for invasive placentation. They concluded that it should only be considered in highly selected cases and that no proof was found for a first choice uterus preserving treatment modality. Despite the extensive review of the literature, no conclusions about the superiority of any modality can be drawn. The patient should be counseled about the risk of hysterectomy, blood transfusion and even death.

Prophylactic antibiotics are generally administered to prevent infection²³. When conservative management is successful, it results in gradual resorption of the placenta or delayed delivery of the placenta²⁴⁻²⁶. Due to the risk of severe hemorrhage, all obstetric units and practitioners must have the facilities, personnel, and equipment in place to manage this emergency properly and a multidisciplinary approach is recommended²⁷. 11 cases of morbidly adherent placenta were managed successfully conservatively by leaving the placenta in situ with uterine artery embolisation post operatively and single dose of methotrexate injection on day 5. Evacuation and complete removal of the placental tissue was done within 2 months postpartum in all women in our study.

Conclusions: Complications of placenta accreta include massive hemorrhage, damage to the uterus, bladder, ureters, and bowel, and often cesarean hysterectomy to control bleeding. Prenatal diagnosis of placenta accreta can help minimize the complication rate by enabling a surgeon to plan for the type of resources needed at the time of delivery. These resources include obstetric anesthesia, appropriate surgical expertise, available blood products and cell saver technology, possibly interventional radiology for uterine artery

embolization, and postoperative intensive care. Conservative management appears to be a safe alternative to the extirpative management and is a logical option in well selected haemodynamically stable patients of adherent placenta.

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