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An Overview on Management and Outcome of Morbidly Adherent Placenta

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Abstract

Morbidly adherent placenta, which describes placenta accreta, increta, and percreta, implies an abnormal implantation of the placenta into the uterine wall. The incidence of placenta accreta has increased significantly over the past several decades, with the main risk factors include prior cesarean section and placental previa. Sonographic markers of placenta accreta can be present as early as the first trimester and include a low uterine implantation of a gestational sac, multiple vascular lacunae within the placenta, loss of the normal hypoechoic retro placental zone, and abnormality of the uterine serosa–bladder interface, among others. Ultrasound has high sensitivity and specificity for the diagnosis of placenta accreta and MRI should be reserved for rare cases in which the ultrasound is non-diagnostic. The optimum time for planned delivery for a patient with placenta accreta is around 34–35 weeks following a course of corticosteroid injection? The successful management of placenta accreta includes a multidisciplinary care team approach with the successful management relying heavily on the prenatal diagnosis of this entity and preparing for the surgical management in a multidisciplinary approach by assuring the most skilled team is available for those patients.

Keywords: Placenta accreta spectrum, Morbidly Adherent Placenta, PAS.

Mini review article **Corresponding Author*, e-mail: *mariam.abdelmonem@gmail.com*

1. Introduction

Placenta accreta spectrum (PAS), formerly known as Morbidly Adherent Placenta (MAP) referred to abnormal adherence either in whole or in part of placenta to underlying uterine wall. It is classified according to the degree of adherence and by amount of placental involvement into 3 types as placenta accrete – (chorionic villi adherent to superficial myometrium), placenta increta – (chorionic villi involving myometrium) and placenta percreta (chorionic villi penetrating full thickness myometrium and involving serosa) [1]. Optimal management of MAP is unclear. It includes referral to subspecialists, timing of delivery, surgical techniques, and use of radiographic embolization of pelvic vessels, blood product replacement, and ureteral stents [2]. Management by a dedicated multidisciplinary team has been shown to reduce maternal morbidity particularly massive hemorrhage. Multidisciplinary team includes surgical expertise, maternal-fetal medicine, anesthesiology, transfusion medicine, neonatology, pulmonology, critical care medicine, urology, gynecologic oncology as well as specialized nursing staff, Vascular trauma surgery and interventional radiology add to team and a blood bank that can facilitate transfusion of large quantities of blood products. Such centers have termed "centers of excellence" for placenta accrete [3]. Minimization of blood loss is paramount to reducing significant morbidity and mortality. Early blood product replacement within a massive transfusion protocol also reduces these risks. Transfusion must include not only packed red blood cells (PRBC), but also fresh frozen plasma and/or cryoprecipitate to maintain in a 1:1 or 2:1 ratio to prevent dilutional coagulopathy. Electrolytes particularly ionized calcium and potassium should be measured frequently. During acute hemorrhage, we draw complete laboratory sets (ABG, K, Ca, PT, PTT, INR, fibrinogen, platelets, D-dimer, glucose, and Mg) every 20 minutes [4]. Prior to delivery, two large-bore venous lines and an arterial line are placed. With induction of anesthesia, a central venous line or rapid infusion catheter placed to optimize monitoring and ensure adequate vascular access before onset of hemorrhage [5].

2. Surgical management: obstetric hysterectomy

Morbidly adherent placenta is one of the most common causes of obstetric hysterectomy. A nationwide review of the peripartum hysterectomies by the UK Obstetric Surveillance System (UKOSS) found that (MAP) was the cause in 38% of cases [6]. Although regional anesthesia for cesarean delivery is associated with significantly fewer complications, general anesthesia may be required in cases of MAP due to the significant risk of massive hemorrhage with profound

hypotension and coagulopathy in emergent or highly invasive cases. At our center whenever possible patients undergo combined spinal epidural anesthesia for bilateral ureteric stent placement and cesarean delivery. This minimizes fetal exposure to general anesthesia allows the mother to be awake during delivery of the baby and facilitates postoperative pain management [5]. The type of skin incision is midline or pfinntail incision, while uterine incision depends on sonographic localization of the placental site either upper segment or lower segment CS. Most experts recommend a planned cesarean hysterectomy with USCS to avoid compromising the placenta. Patients is positioned in lithotomy with low-Allen stirrups to allow visualization of vaginal bleeding and to allow a third co-surgeon access to the surgical field [7]. Women undergoing attempts of removal of the placenta after delivary of fetus before hysterectomy have an increased incidence of maternal morbidity (admission to the ICU for >24 hours, transfusion of ‡4 units of packed red blood cells, coagulopathy, ureteric injury, or early reoperation) when compared with those undergoing cesarean hysterectomy with the placenta left in situ [8].

2.1. Measures to control excessive blood loss during & after surgery

- Balloon catheter occlusion or arterial embolization aims to reduce blood flow to the uterus and potentially to arrest or prevent hemorrhage. The RCOG recommends the use of interventional radiology as a prophylactic measure where there is a known or suspected MAP [9].
- The catheters- with or without balloons- are placed preoperatively in the internal iliac or uterine arteries and inflation of the balloons or embolization is performed after delivery of the fetus. When balloon catheters are used, they are deflated after completion of the procedure [10].

2.2. Conservative management

- Conservative approaches for women who wish to preserve their fertility aim to avoid hysterectomy by leaving the placenta in situ. This approach lowers the risk of subsequent hysterectomy from 85 to 15%. Unless there is a plane between the placenta and the myometrium and the placenta can be removed with minimal effort, no further attempts to remove it should be made, so that the fused area between the placenta and the myometrium is not disrupted [11].
- Conservative approaches involve delivery of the neonate followed by closure of the uterine incision with the placenta left in situ, with or without adjuvant measures such as usage of uterine compression sutures, de vascularization or embolization. The placenta is allowed to be resorbed over time [12].
- Reasonably good outcomes have been reported using this approach. In a series of 167 patients with MAP, conservative management was successful in 78.4% of the cases with severe maternal morbidity in 6% of the cases and spontaneous placental resorption in 75% of the cases with a median time from delivery of 13.5 weeks. Despite these good outcomes, concerns remain about conservative management [13].

2.3. Additional procedures in conservative management

- Avoidance of removal of the placenta may lead to increased risk of hysterectomy, hemorrhage, and blood transfusion. While there is no consensus as to whether the placenta should be removed in the postpartum period or left to resorb or to be expelled spontaneously. Some reports describe removal of the placenta in the postpartum period at time intervals varying from 2 weeks to 2 months postpartum. If significant bleeding occurs, a manual removal can be attempted, but interval removal of the placenta can be associated with heavy bleeding [14].
- Pelvic de vascularization includes ligation of uterine artery (high & low level). Ovarian artery & internal iliac artery [14].
- Methotrexate is folate antagonist. It acts against r [14]. Rapidly dividing cells and is effective against proliferating trophoblastic. However, as after delivery of the fetus the placenta is no longer dividing, a significant effect of methotrexate on degenerative tissue [15].
- The use of tissue sealants for mechanical fibrin plugging in cases of refractory obstetric hemorrhage without coagulopathy, has recently been advised, and may become an alternative treatment option but there is no sufficient evidence on their effectiveness and safety [16].
- Segmental resection of the myometrium and compression sutures [17].

2.4. Post-operative management

- Close clinical monitoring of vital signs, urine output, and intra peritoneal drain volume (when placed) is critical for early detection of intra peritoneal hemorrhage or hemorrhagic shock. Intra peritoneal drains may be placed in the event of cystotomy and repair or ureteral injury to monitor for early signs of urine leak [18].
- Antibiotic prophylaxis and prophylactic postpartum uterotonic treatment appear necessary although there is no consensus in the literature. A placenta that is left in situ has risks of infection and antibiotic cover has been recommended [14].

3. Outcome

3.1. Maternal Outcome

- Complications of placenta accreta are many and include damage to local organs, amniotic fluid embolism, consumptive coagulopathy, transfusion-related complications, postoperative thromboembolism, infectious morbidities, and multisystem organ failure. DIC and maternal death [19].
- The most common postoperative complication is hemorrhage and transfusion-related complications as anaphylaxis& acute respiratory distress syndrome. As retained products are a risk factor for uterine atony, so the use of uterotonics has been advised. Most commonly used is intravenous infusion of oxytocin for 3 hours to 3 days, although this is again not described universally [16].
- The urinary tract injury is the most frequently involved extra uterine organs in cases of placenta percreta. Urinary bladder involvement is associated with significant morbidity. A review of cases of placenta percreta with bladder involvement showed that hematuria was present antenatal in only 17/54 cases

(31%). Cystoscopy did not assist the diagnosis in any of the patients. In 33% of the cases, the diagnosis was established by ultrasound or MRI. Urological complications included bladder laceration (26%), urinary tract fistula (13%), hematuria (9%), ureteric transection (6%) and small capacity bladder (4%). Partial cystectomy was required in 24/54 cases (44%). There were 3 maternal (5.6%) and 14 fetal deaths (25.9%) [20].

3.2. Fetal outcome

Neonatal complications due to MAP are mainly the result of preterm birth. The average gestational age of delivery in women with MAP is typically between 34 and 36 weeks of gestation, typically as a result of medically indicated preterm birth [21]. Up to 50% of women may have an unscheduled or emergent delivery even earlier than 34–35 weeks due to bleeding or contractions. Although very rare, uterine rupture secondary to placenta percreta has been reported, and patients may present with such significant bleeding (vaginal or intraperitoneal) as to necessitate delivery prior to fetal viability (23 weeks gestation) in an effort to save the mother's life [21].

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