Obstetric and Anaesthesia Checklists for the Management of Morbidly Adherent Placenta

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Abstract

Objective: To develop an integrated checklist for the management of patients with suspected morbidly adherent placenta (MAP).

Methods: A checklist process was developed incrementally by clinicians in the disciplines of maternal-fetal medicine, gynaecology, medical imaging, and anaesthesia for management of women with suspected MAP.

Results: Over a five-year period of debriefing after individual cases, a comprehensive checklist system was developed. The checklist is activated upon referral if MAP is suspected at an initial maternal-fetal medicine consultation; the process is subsequently guided by a clinical nurse specialist, leading to a standardized program of care.

Conclusions: Having a checklist process facilitates standardized care and optimal communication between specialists, providing team-based care for women with this potentially serious complication of pregnancy.

Résumé

Objectif : Élaborer une liste de vérification intégrée pour la prise en charge des patientes chez qui on soupçonne la présence d'une adhérence pathologique du placenta (APP).

Méthodologie : Un processus sous forme de liste de vérification pour la prise en charge de possibles APP a été élaboré graduellement par des cliniciens de diverses disciplines : médecine maternelle et fœtale, gynécologie, imagerie médicale et anesthésiologie.

Résultats : Sur une période de cinq ans, nous avons élaboré une liste de vérification exhaustive basée sur l'analyse de débreffages de cas individuels. Le processus est enclenché dès l'aiguillage en cas de soupçon d'APP lors d'une consultation en médecine maternelle et fœtale; il est ensuite guidé par une infirmière clinicienne spécialisée et prend la forme d'un programme de soins normalisé.

Conclusion : La liste de vérification favorise la normalisation des soins et la communication optimale entre spécialistes et réunit une équipe de soins pour prendre en charge les femmes présentant cette complication potentiellement grave de la grossesse.

Key Words: Checklist, disease management, high risk pregnancy, obstetrical anaesthesia, placenta accreta, placental disease

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INTRODUCTION

Invasive placentation refers to a spectrum of disorders in which the placenta attaches in a pathologic manner to the myometrium and is unable to detach efficiently at birth, leading to a morbidly adherent placenta. It is categorized according to the depth of invasion of placental villi and ranges from placenta accreta (in which anchoring placental villi make direct contact with myometrium) to increta (in which placental villi invade the myometrium) and percreta (in which placental tissue penetrates the uterine serosa to attach to adjacent vital structures including the bowel and bladder).[1] The term MAP is commonly used to refer to the full spectrum of invasive placentation. The degree of invasion is variable and the condition can be staged using magnetic resonance imaging.[2] The incidence of MAP has risen in parallel with the rates of primary Caesarean section and with the proportion of pregnant women who have had multiple prior deliveries by CS.[3] It is currently estimated that one in 695 deliveries in Canada is complicated by MAP.[3] Invasive placental disorders are associated with high rates of perinatal morbidity, including life-threatening hemorrhage at the time of delivery.

A retrospective study from our institution of 33 women with MAP showed improved outcomes when the management of these patients was provided by a multidisciplinary team comprising specialists in maternal-fetal medicine, surgical gynaecology, obstetrical anaesthesia, and interventional radiology.[4]

Recently, a number of referral centres have recommended establishing centres of excellence for the management of this condition,[5,6] emphasising the importance of incorporating care provided by a range of specialists into an effective and consistent clinical program.

We describe here the development of a practical checklist system to be used in the management of women with MAP, from initial diagnosis until their final postpartum follow-up visit.

METHODS

The protocol was developed by senior members of the maternal-fetal medicine, surgical gynaecology, IR, pediatric, anaesthesia, and nursing staff at Mount Sinai Hospital in Toronto, Ontario, a centre currently managing approximately 20 cases of confirmed MAP annually. Although care plans for these cases have evolved over the past 15 years, the structured checklist process has matured over the past five years, refined by continuous debriefing after individual cases.

RESULTS

The obstetrical and anaesthesia checklists are shown in Tables 1 and 2, respectively.

Antenatal Management

All referrals to the Mount Sinai Hospital special pregnancy program are triaged by clinical nurse specialists, and referrals for MAP are assessed by maternal-fetal medicine clinicians. Ultrasound imaging includes colour and power Doppler assessment of placental and uterine vascularization.[7] Cases with suspected placental abnormalities are then referred to the Placenta Clinic for confirmation of the ultrasound findings and activation of the checklist process. The checklist process can be carried out on an outpatient basis (for women early in gestation who are asymptomatic) or on an inpatient basis (for women referred after 32 weeks' gestation, with ongoing vaginal bleeding, with a suspicion of placenta percreta [e.g., with hematuria], with maternal comorbidities, or for patient safety because of geographic constraints). Magnetic resonance imaging is subsequently performed to accurately delineate the depth of placental invasion as part of staging.[2] Appropriate staging allows for identification of true placenta percreta, in which case the patient can be appropriately counselled and other surgical disciplines can be involved as needed (e.g., general surgery for bowel involvement and urology for bladder involvement).

Following assessment by the maternal-fetal medicine team, the checklist process is initiated and coordinated by the clinical nurse specialist, and consultations with the multidisciplinary team are arranged as follows:

Surgical gynaecology

The purpose of this consultation is to review the surgical procedure, including discussion of the management options of Caesarean hysterectomy or conservative management if future fertility is desired. For women who have completed their childbearing and wish to undergo sterilization, consent is obtained for tubal ligation in the event that uterine-sparing surgery is possible (in up to 10% of patients[4]). At times, intraoperative circumstances such as the patient's anatomy, area of placental invasion, and surgical bleeding will result in a subtotal Caesarean hysterectomy being performed. Thus, the patient's cervical cytology history is reviewed and documented at the surgical antenatal visit. The location of the abdominal incision is reviewed; usually, the incision is a midline laparotomy. The risks and complications of surgery, blood conservation measures, expected length of stay, and expectations for general recovery are also reviewed. Written consents are obtained for the surgery and the possible need for transfusion of blood products. A complete blood count and assay of serum ferritin are performed so that intravenous iron infusions can be initiated if the patient is anemic. Consultations with a urologist and/or a gynaecologic oncologist are included at the discretion of the gynaecologic surgeon.

Anaesthesia

The purpose of this consultation is to undertake an anaesthesia assessment of the patient. Following this, there is a discussion regarding specific risks of anaesthesia, the anaesthesia and analgesia techniques available, the requirement of invasive arterial monitoring, the need for intraoperative cell-salvage, and postoperative pain management options. Based on experience, we now recommend epidural analgesia for all cases.[25]

Interventional radiology

The purpose of this consultation is to discuss preoperative intra-arterial balloon placement after induction of epidural anaesthesia; this is done to permit temporary occlusion of the anterior division of the internal iliac arteries by

ABBREVIATIONS

APH	antepartum hemorrhage
CBC	complete blood count
FFP	fresh frozen plasma
IR	interventional radiology
MAP	morbidly adherent placenta
pRBC	packed red blood cells