

AIP (abnormally invasive placenta) – from a retained placenta to destruction of the uterine wall

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Postpartum hemorrhage (PPH) is still the most important and potentially avoidable cause of maternal death (1). The uterus in late pregnancy or at term has at any moment a through-flow of blood that corresponds to approximately one-sixth of the pregnant woman's total blood volume, setting the scene for massive bleeding from up to 200 dilated spiral arteries into the uterine cavity, if the uterus does not retract and contract as expected. Hemorrhage ensues, which in a short time may lead to death of a woman in the prime of her life – death at a time when she is supposed to be healthy and able to tolerate more than at other ages. The rapidity of blood loss often goes unnoticed until the situation starts to deteriorate. If the patient is weak and anemic like many women are in low-resource countries, if she is poorly nourished as may easily be seen in the supposedly richer societies, or if she is in the wrong type of delivery situation where background services and transport are inadequate, the danger of severe morbidity and even death is real. There are good reasons why the overwhelming numbers of maternal deaths from severe PPH have stimulated initiatives from regional and international organizations to try to prevent and limit the serious effects of postpartum hemorrhage.

Clinical improvement activities have mainly focused on medical treatment of uterine atony. In 2003 at the FIGO conference in Santiago, Chile, the two professional organizations FIGO (International Federation of Gynecology and Obstetrics) and the ICM (International Confederation of Midwives) launched a global initiative to combat maternal death from PPH (2,3). Since there was evidence that active management of the third stage reduced the incidence of PPH, the quantity of blood loss and the use of blood transfusion, the two organizations agreed that active management of the third stage should be offered to all women. This involved administration of uterotonic drugs, controlled cord traction and uterine massage following delivery of the placenta.

However, the retained placenta and abnormally invasive placenta (AIP) present a different problem where uterine atony may persist along with incomplete separation and thus continued bleeding from a varying and always unknown number of large vessels in the placental bed. The most common form of a retained placenta may not respond effectively to medical treatment and after a while result in atony and

bleeding. Which is the best approach to the common retained placenta? For how long should we wait before proceeding to manual evacuation? Giel van Stralen and colleagues in Leiden, Amsterdam and Den Haag, Netherlands (pp. 396–402), Sys Nikolajsen and co-workers in Hillerød, Denmark (pp. 419–423) and Vedran Stefanovic and colleagues in Helsinki, Finland (pp. 424–431) present new data on the clinical management of retained placenta with different results and conclusions. Therefore, and for the paucity of evidence-based literature on this topic, we aim to call for large observational and randomized controlled studies on retained placenta and PPH. One example is the postpartum use of ultrasound when there is a retained placenta. Can ultrasound be used to differ between an entrapped placenta that should be removed manually and AIP, where a quite different management approach is needed? After studying this issue of AOGS, you will agree that this is possible. Furthermore, the prenatal suspicion of AIP is important because that alone will reduce the maternal morbidity, as reported by Frédéric Chantraine and a consortium of co-workers in Belgium, Germany and Switzerland (pp. 437–442).

Retention of bits and pieces of the placenta or membranes may result in atony, which initially is somewhat responsive to uterotonics, but where hemorrhage will eventually recur in a situation when the mother is lactating, enjoying her first meal and the family is celebrating. Therefore, the management for PPH starts with a clinical examination (inspection of vulva, vagina and cervix) and exploration of the uterine cavity, either by manual revision or ultrasound. In addition to the medical treatment, Bakri balloon tamponade must also be considered as a rapid and effective option where applicable. The results presented by Maiju Grönvall and co-workers in Helsinki, Finland (pp. 431–436) and Laura Aibar and colleagues in Granada and Motril, Spain (pp. 463–465), are encouraging.

All women with retained placenta do potentially need anesthesia. These women need to be prioritized because an unnecessary delay will inevitably result in more blood loss (4). Close collaboration with a view “to make plans” in a team formed by obstetricians, anesthetists and midwives is necessary for these situations. Practical consideration of all eventualities is essential since the quantity of PPH is very time dependent. In

this stressful situation, a team can even “forget” to apply transfusion guidelines as reported by Marie Bonnet and colleagues in Paris, Lyon, and Bron, France (pp. 402-411). Continuous training of all the disciplines in touch with PPH and AIP situations has to be developed by each unit. Regular auditing may help to keep the required high level of competence.

How do we then diagnose and manage the most severe forms of AIP, also known as placenta percreta, which are rare, but unavoidably going to increase due to the “cesarean epidemic”? Prediction of severe AIP relies on competent screening by ultrasound, especially in women with a previous cesarean section and a low anterior placenta. Implantation may result in a “cesarean scar pregnancy” or a “placenta percreta” either covering a uterine lower segment dehiscence or invading the scar tissue (5). Placental tissue is by nature invasive and stimulated by hypoxia to invade deeply (scar tissue is worse for blood connections) and here it may go through the scar to seek angio-connection in a neighboring organ, usually the bladder, since severely invasive placentas are most often localized in a previous isthmic cesarean scar. Then we have an even more serious issue where it may be impossible to remove the pathologic tissue without excessive trauma. To manage such cases effectively, a multidisciplinary team in a tertiary care center treating these conditions regularly is vital. Caroline Clausen and her colleagues in Copenhagen, Denmark (pp. 384–389) demonstrate clearly by the example of balloon occlusion of the iliac arteries the need for expertise in the management of severe AIP cases.

It can be foreseen that tertiary advice centers can also come in with telecommunication measures to help with the difficult surgery invariably inherent in such a situation, – in order to give advice on what to do, how to do it and when to stop. To obtain an optimal structure for the management of women with severe AIP, we need preparation in the place of delivery and explicit and clear referral plans to centers of excellence on a regional or even inter-country basis with video- and telephone links for efficient access to expert knowledge. The need for collaboration between specialties cannot be exaggerated. This calls for education by multidisciplinary courses and for training activities for key obstetricians, midwives and specialists in anesthesia, fetal medicine, blood-banking, and interventional radiology.

Just over a year ago we put out a call for articles on AIP. We had more than could be published in one issue, which shows the interest and importance of this topic worldwide.

Most are here and reflect anything from operative methodology to a conservative approach, each with their merits and limits, as no one has the all-embracing answer. More will appear in the next issues of AOGS. We hope this volume will reflect the broadness of medical interest and concern and lead to practical proposals and solutions like at FIGO in 2003; only here it is not just midwives and obstetricians like with atonic PPH. A broad collaboration with other medical specialties is called for as well.

The main goal is to minimize the serious, dramatic and even fatal consequences of postpartum hemorrhage. Uterine atony is important, and the abnormally invasive placenta as well. While continuing to forestall uterine atony, the focus should now shift to severe AIP. In these years international networks and collaborative data collection are being launched to solve important research questions in this field. Examples are NOSS (Nordic Obstetric Surveillance System), UKOSS (UK Obstetric Surveillance System) and now the EW-AIP (European Working Group on AIP) initiatives. The French PACCERTA-project, a prospective population-based study on AIP presented in this issue by Gilles Kayem and co-workers at centers in France (pp. 474–480), highlights the right direction for clinical research in this field.

This theme issue covers a broad range of studies, shows novel surgical techniques and provides dramatic narratives!

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