

## **Delayed hysterectomy: a laparotomy too far?**

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There is no doubt that the incidence of placenta accreta spectrum (PAS) disorders is rising and that this is linked to rapid increase caesarean delivery rates worldwide.<sup>1</sup> The associated risks of maternal morbidity and mortality has encouraged increasing research into the safest methods for managing this complex condition. The retrospective study by Zuckerwise et al<sup>2</sup> highlights not only the need for more evidence regarding the safest method of management but the difficulties involved in making an appropriate comparison between different grades of this spectrum disorder. Their paper examines the outcomes of 34 women found to have invasive PAS (increta/percreta) at the time of delivery who were either managed by immediate hysterectomy or delay hysterectomy via laparotomy 4-6 weeks later. They conclude that delayed hysterectomy may reduce the incidence of massive hemorrhage.

As Zuckerwise et al state in their introduction, the International Society for Abnormally Invasive Placenta (IS-AIP) commented on the paucity of evidence for delayed hysterectomy in their recently published intrapartum management guideline.<sup>3</sup> The IS-AIP concluded that “*There is no evidence of benefit of planned delayed hysterectomy, and the potential complications of performing a second intentional surgical procedure in a stable patient, outweigh the benefits*”.<sup>3</sup> This recommendation was primarily based on the data available for successful expectant management (leaving the placenta in situ). The largest case series published to date of expectant management is a multicenter retrospective study of 167 cases of AIP in 40 French teaching hospitals.<sup>4</sup> This study reported successful expectant management, defined as uterine preservation, in 78% of cases. However, only 68 of the 167 women had their entire placenta left behind and the study does not report whether these women were more or less likely to need a subsequent hysterectomy. However, of note the median time to delayed hysterectomy in the case series was 22 days (9-45). Therefore, all of the hysterectomies required in the French study had occurred by 6 weeks and 3 days. This raises the question if the woman is stable and well 6 weeks following her delivery, does she really need a planned second laparotomy and hysterectomy with all the subsequent morbidity and prolonged stay in hospital? Especially as by this timepoint her initial incision will be relatively well-healed and she has an infant to care for and bond with. Surely continuing with expectant management by this stage would be the appropriate course of action? This appears to have occurred in the Vanderbilt cohort<sup>2</sup> for one woman who declined her planned

delayed hysterectomy and then re-presented 2 years later with a subsequent pregnancy.

Much of the criticism levelled at the French study is based on the heterogeneity of the population and the lack of histological confirmation of PAS and in particular on the differential diagnosis between adherent and invasive grades. This led an expert review group to conclude that there may have been bias towards partial or focal PAS cases<sup>5</sup>. This may be true as 99 women only had part of the placenta left behind however, histopathological examination confirmed the diagnosis of PAS in all immediate (18/18) and all but one delayed hysterectomies (17/18) demonstrating that the intrapartum diagnosis was reliable.<sup>4</sup> The requirement by obstetricians to have a histopathological diagnosis of PAS significantly affects studies investigating any management strategy other than hysterectomy and, although the pathologist can confirm accreta, increta or percreta, they are not able to take into account vital surgical markers for morbidity such as excessive neovascularity and invasion into the cervix, pelvic sidewall or other viscera. The pathology findings also depend on which part of the specimen is sampled. Different parts of the placental bed can have different levels of invasion with all three types of PAS often co-existing in a single placenta.<sup>1</sup> This can lead to a pathology report which is in conflict with the obstetrician's findings. All of this highlights the need for a standardized clinical grading system which not only correlates with the histopathological diagnosis but takes into account the degree of surgical complexity. Such a classification system has recently been proposed by FIGO.<sup>6</sup> This provides 3 grades of severity for PAS with clear descriptions of the findings at both vaginal delivery and laparotomy (including cesarean deliveries) given for each grade. Grade 1 correlates with accreta or abnormal adherence, grade 2 with increta and grade 3 percreta. The third grade is then divided into 3a, 3b and 3c according to the invasion of surrounding structures. The use of this grading system should enable appropriate comparison of management strategies without the requirement for histopathology and provide information of which type of PAS is amenable to different management strategies.

Another issue with expectant management is the huge variety of additional interventions described in the literature which have been used as adjuncts. These include methotrexate, which was directly responsible for a maternal death in the French case series,<sup>4</sup> pelvic devascularization and embolization. This has resulted in confusion regarding both patient selection and actual management strategy.

Prophylactic arterial embolization appears popular despite there being no evidence for efficacy and two reported cases of uterine necrosis in the literature<sup>7, 8</sup>.

Consequently it is not recommended by the IS-AIP.<sup>3</sup> The potential damage of embolization in this situation is biologically plausible as necrosis will ensue if there are insufficient collaterals to supply the uterus. If there is a significant amount of neovascularization, embolization will briefly reduce the blood flow before the collateral circulation re-establishes blood supply to the placenta. This may result in an ischaemic-reperfusion injury making morbidity such as infection, tissue necrosis and fistulae formation more likely. Is it possible that we as clinicians, being unable to 'sit on our hands' and do nothing, are potentially worsening the outcome of conservative management?

There are many different strategies for managing PAS. As its name suggests is a spectrum disorder so it is unlikely that one single method can provide the definitive management plan. Outcomes are also directly linked to the depth and lateral extension of the accreta villous tissue. In order to fully understand the risks and benefits of the different strategies available and guide women through this difficult, potentially life-threatening disorder, more high-quality studies of management strategies are required. These studies need to appropriately describe their techniques including all adjuvants used and define the intra-partum grade of PAS according to the FIGO classification system. Only then will we be able to truly know which management strategy is most appropriate for which cases of PAS and avoid potential iatrogenic morbidity from unnecessary interventions.

## References:

1. JAUNIAUX E, CHANTRAINE F, SILVER RM, LANGHOFF-ROOS J, DIAGNOSIS FPA, MANAGEMENT EXPERT CONSENSUS P. FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology. *Int J Gynaecol Obstet* 2018;140:265-73.
2. ZUCKERWISE LC, CRAIG AM, NEWTON JM, ZHAO S, BENNETT KA, CRISPENS MA. Outcomes following a clinical algorithm allowing for delayed hysterectomy in the management of severe placenta accreta spectrum. *Am J Obstet Gynecol* 2019.
3. COLLINS SL, ALEMDAR B, VAN BEEKHUIZEN HJ, et al. Evidence-based guidelines for the management of abnormally invasive placenta: recommendations from the International Society for Abnormally Invasive Placenta. *Am J Obstet Gynecol* 2019;220:511-26.
4. SENTILHES L, AMBROSELLI C, KAYEM G, et al. Maternal outcome after conservative treatment of placenta accreta. *Obstet Gynecol* 2010;115:526-34.
5. FOX KA, SHAMSHIRSAZ AA, CARUSI D, et al. Conservative management of morbidly adherent placenta: expert review. *Am J Obstet Gynecol* 2015;213:755-60.
6. JAUNIAUX E, AYRES-DE-CAMPOS D, LANGHOFF-ROOS J, et al. FIGO classification for the clinical diagnosis of placenta accreta spectrum disorders. *Int J Gynaecol Obstet* 2019;146:20-24.
7. BOUVIER A, SENTILHES L, THOUVENY F, et al. Planned caesarean in the interventional radiology cath lab to enable immediate uterine artery embolization for the conservative treatment of placenta accreta. *Clin Radiol* 2012;67:1089-94.
8. PAN Y, ZHOU X, YANG Z, CUI S, DE W, SUN L. Retrospective cohort study of prophylactic intraoperative uterine artery embolization for abnormally invasive placenta. *Int J Gynaecol Obstet* 2017;137:45-50.