Editorial

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Confirming the Diagnosis and Classifying Placenta Accreta Spectrum (PAS) Disorders: Minutes of 2020 Online International Workshop on PAS in Beijing

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Diagnosis of placenta accreta spectrum (PAS)

Before 2018, there were various terms used to describe PAS disorders, such as morbidly adherent placenta (US/Egypt/Israel), adhesive placenta (Italy/Argentina), and pernicious placenta (Chinese mainland). An inclusive standardized terminology PAS was proposed by the International Federation of Gynecology and Obstetrics (FIGO) in March 2018 and endorsed by the Society for Maternal-Fetal Medicine and American College of Obstetricians and Gynecologists, Royal College of Obstetricians and Gynecologists, and the Society of Obstetricians and Gynecologists of Canada.[1] It describes the grade of PAS which are separated into three categories: placenta adherenta or creta (PC) when the villi adhere directly to the myometrium without a decidual interface, placenta increta (PI) when the villi invade the myometrium and placenta percreta (PP) when the villi invade the full thickness of the uterine wall including the serosa.[2]

If the terminology is now agreed on, there are still some issues with the diagnosis of PAS. The prenatal diagnosis of PAS and in particular the differential diagnosis between abnormally adherent placenta (creta/sticky placenta/placenta retention) and abnormally invasive placenta (increta/percreta) is essential for the development of adequate management protocols and accurate epidemiology data. In many cases of abnormally adherent placenta, the obstetricians can often manage to remove the placenta and stop the bleeding with balloon or compressive suture. However, in cases of abnormally invasive placenta, the surgeons will not be able to detach the placenta from the uterine wall and partial myometrial resection with uterine reconstruction or hysterectomy will be needed.[3]

A systematic review and meta-analysis including 29 studies and 7001 cases of PAS found that the prevalence of PAS was highly variable, ranging between 0.01% and 1.1% with an overall pooled prevalence of 0.17% (95% confidence interval, 0.14–0.19).[4]

Similarly, variability in incidence were found more specifically for placenta previa accreta data.[5] This considerable heterogeneity in prevalence and incidence of PAS highlights methodologic inconsistencies between studies with regards to clinical criteria that were used for the diagnosis of both placenta previa and PAS and the histopathologic confirmation of the diagnosis and differential diagnosis between adherent and invasive accreta placentation.

The clinical and histologic criteria for the diagnosis of accreta placentation were first reported by Irving and Hertig in 1937[6] and included the absence of decidual layer between the placenta and myometrium with direct attachment of the villi to the myometrium resulting in the abnormal attachment of the placenta at delivery. All the cases described in this first series were cases of PC or placenta adherenta (none were invasive). Histopathologic examination is the confirmatory gold standard,[7] but most current authors of PAS cohort series do not provide complete and transparent information on both clinical and histopathological findings. The clinical and pathologic diagnostic standards have stagnated, with little change over the last 80 years.[3]

The lack of standardized protocols for the confirmation diagnosis at birth has led to the overdiagnosis of both PC and PP. Cases diagnosed as PC but using criteria that are similar to complete or partial placenta retention and often include:

(1) difficult manual and/or piecemeal removal of the placenta;
(2) and/or evidence of placental separation after 20 minutes despite active management (uterotonics/cord traction);
(3) and/or bleeding (massive) from the placental site after delivery of the placenta in "well contracted" uterus (at both vaginal birth and C-section).

Similarly, at least 50% of PP are not PAS. Many authors refer to PP when they observe a uterine "window" (dehiscence with the placental visible through it). These can be small or large, sometime involving >50% of the lower segment and are common in women with

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multiple cesarean deliveries.[3] The area can be covered by adhesions and dilated vessels but in most cases, the placenta is just simply lying under the dehiscence (very thin or no myometrium left) and has not perforates the serosa[8] and thus should not be reported as PP. Cases of pseudo-percreta placenta previa in women are commonly reported as PP but those are not actual PAS, unless there is an area of PC or PI around the dehiscence area.[9]

A consensus panel of experts in perinatal pathology was recently convened to recommend terminology and reporting elements unified across the spectrum of PAS specimens (ie, delivered placenta, total or partial hysterectomy with or without extrauterine tissues, curetting for retained products of conception).[10] The proposed nomenclature under the umbrella diagnosis of PAS replaces the traditional categorical terminology (placenta accreta, increta, percreta) with a descriptive grading system that parallels the guidelines endorsed by the FIGO.

Valuable clinical information on the serosal vascularity, uterine dehiscence, and extension of the accreta area is added with the description of the macroscopic examination during the surgical procedure and immediate dissection of the specimen.[11] Hysterectomy specimens are better examined fresh to allow more detailed macroscopic description and to obtain guided biopsies from the area of the placenta that is abnormally attached to the uterine wall (or partial myometrial reresection).[11] For hysterectomy specimens with the placenta in situ, the specimen should be examined carefully to find out the invasive area using gently separating by fingers, avoiding damaging the placental-uterine interface. This methodological approach is cost-effective and increases the quality of the histologic sampling. It facilitates immediate correlation with imaging and intraoperative findings, as well as standardized tissue sampling for accurate differential diagnosis among the different grades of villous invasiveness. All specimens should be examined by a senior pathologist with expertise in PAS histopathology and perinatal pathologists should be part of multidisciplinary teams involved the management PAS disorders.

FIGO classification for PAS

PAS includes all grades of abnormal placentation and is used as the basis for the development of a new clinical classification proposed by the FIGO[12]:

(1) Grade 1 – Abnormally adherent placenta (PC) when the villi adhere directly to the myometrium without a decidual interface.
(2) Grade 2 – Abnormally invasive placentation (PI) when the villi invade into the myometrium.
(3) Grade 3 – Abnormally invasive placentation (PP) when the villi invade the full thickness of the uterine wall either to the serosa or beyond. They are subdivided into: Grade 3a, limited to and including the uterine serosa; Grade 3b, when there is urinary bladder invasion; Grade 3c, when there is invasion of other pelvic tissue/organs.

Many clinicians and the World Health Organization international classification of diseases (www.who.int/classifications/icd) continue to use the 1937 Irving and Hertig definition for placenta accreta and therefore make no distinction between different grades of PAS.[1] Only 10% of studies on the prenatal diagnosis of PAS and placenta previa accreta provide detailed histopathology data on the different grades of PAS, and the corresponding distribution varies widely.[4,5]

The use of the FIGO classification and perinatal pathology classification together with guided sampling will increase the quality of histologic sampling and provide more accurate clinic-pathologic correlations with ultrasound images obtained before surgery. Images of the operating field should be taken in each case.

In conclusion, improving the quality of prenatal diagnosis, especially differentiation between abnormally invasive placenta and abnormally adherent placenta is very important for management. Histopathologic confirmation of diagnosis is the golden standard for PAS and perinatal pathologists should be part of multidisciplinary team involved in the management of PAS. This new FIGO classification, together with the standardized prenatal imaging descriptions and proforma reporting for suspected antenatally with placenta accreta,[13] have been established with the intent of improving the overall quality of epidemiologic data on PAS incidence. This system may also improve management outcome data, by allowing stratification using the standardized different grades of PAS and the development of targeted screening protocols for women at high risk of PAS.[14]

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Conflicts of Interest

None.

References

[1] Jauniaux E, Kingdom JC, Silver RM. A comparison of recent guidelines in the diagnosis and management of placenta accreta spectrum disorders. Best Pract Res Clin Obstet Gynaecol 2020; S1521-6934(20)30097-3. doi: 10.1016/j.bpobgyn.2020.06.007. Online ahead of print.
[2] Jauniaux E, Collins S, Burton GJ. Placenta accreta spectrum: pathophysiology and evidence-based anatomy for prenatal ultrasound imaging. Am J Obstet Gynecol 2018;218(1):75–87. doi:10.1016/j.ajog.2017.05.067.
[3] Jauniaux E, Hussein AM, Fox KA, et al. New evidence-based diagnostic and management strategies for placenta accreta spectrum disorders. Best Pract Res Clin Obstet Gynaecol 2019;61:75–88. doi:10.1016/j.bpobgyn.2019.04.006.
[4] Jauniaux E, Bunce C, Grønbeck L, et al. Prevalence and main outcomes of placenta accreta spectrum: a systematic review and meta-analysis. Am J Obstet Gynecol 2019;221(3):208–218. doi:10.1016/j.ajog.2019.01.233.
[5] Jauniaux E, Grønbeck L, Bunce C, et al. Epidemiology of placenta previa accreta: a systematic review and meta-analysis. BMJ Open 2019;9(11):e031193. doi:10.1136/bmjopen-2019-031193.
[6] Irving C, Hertig AT. A study of placenta accreta. Surgery, Gynecol Obstet 1937;64:178–200.
[7] Jauniaux E, Alfirevic Z, Bhide AG, et al. Placenta praevia and placenta accreta: diagnosis and management: green-top guideline no. 27a. BJOG 2019;126(1):e1–e48. doi:10.1111/1471-0528. 15306.
[8] Jauniaux E, Zosmer N, Subramanian D, et al. Ultrasound-histopathologic features of the utero-placental interface in placenta accreta spectrum. Placenta 2020;97:58–64. doi:10.1016/j.placenta.2020.05.011.
[9] Einerson BD, Comstock J, Silver RM, et al. Placenta accreta spectrum disorder: uterine dehiscence, not placental invasion.

Obstet Gynecol 2020;135(5):1104–1111. doi:10.1097/AOG.0000000000003793.
[10] Hecht JL, Baergen R, Ernst LM, et al. Classification and reporting guidelines for the pathology diagnosis of placenta accreta spectrum (PAS) disorders: recommendations from an expert panel. Mod Pathol 2020;33(12):2382–2396. doi:10.1038/s41379-020-0569-1.
[11] Jauniaux E, Hussein AM, Zosmer N, et al. A new methodologic approach for clinico-pathologic correlations in invasive placenta previa accreta. Am J Obstet Gynecol 2020;222(4):379.e1–379.e11. doi:10.1016/j.ajog.2019.11.1246.
[12] 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(1):20–24. doi:10.1002/ijgo.12761.
[13] Collins SL, Ashcroft A, Braun T, et al. Proposed for standardized ultrasound descriptions of abnormally invasive placenta (AIP). Ultrasound Obstet Gynecol 2016;47:271–275. doi:10.1002/uog.14952.
[14] Jauniaux E, Silver RM. Rethinking prenatal screening for anomalies of placental and umbilical cord implantation. Obstet Gynecol 2020;136(6):1211–1216. doi:10.1097/AOG.0000000000004175.

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