Case Reports in Women's Health xxx (xxxx) xxx

Contents lists available at ScienceDirect

Case Reports in Women's Health

journal homepage: www.elsevier.com/locate/crwh

Invited Editorial

Placenta accreta spectrum - the ongoing evolution of an iatrogenic condition

ARTICLE INFO

Keywords
Placenta accreta spectrum
Caesarean hysterectomy
Uterine conservation

Placenta accreta spectrum (PAS) is a rare, iatrogenic complication of pregnancy of abnormal placental adherence to the myometrium [1,2]. First described in 1937 [3], PAS is associated with significant maternal morbidity, mostly attributed to haemorrhage, caesarean hysterectomy and complications of surgery [2,4,5]. The incidence of PAS has increased significantly in recent decades due to the rising caesarean birth rate worldwide [6].

Our understanding of PAS has evolved considerably over recent years. Historical classifications and terminology such as "abnormal invasive placentation" suggested the placenta invaded beyond the confines of the uterine serosa into adjacent organs such as the bladder. While placenta "percreta", where the placenta invades other organs outside the uterine serosa, was described for decades, usually based on intraoperative findings, this invasion was never definitively proven on histopathology [7]. Intraoperative findings suggestive of placental invasion, such as a densely adherent bladder with neovascularisation, are likely a result of adhesions from prior surgery combined with myometrial thinning as a consequence of dehiscence from placental growth in a scarred uterine wall [8,9]. As a result, authors have argued that the concept of PAS as a disease of abnormal placental invasion should be abandoned and replaced [7,9]. Rather than being a condition of abnormal placental invasion, most now agree that PAS is a condition of uterine dehiscence, where placental development and growth in an area of uterine scarring cause dehiscence as gestation advances [8].

Possibly due to the lack of understanding of the underlying mechanism of disease, there have been significant ambiguity, variation and heterogeneity in the diagnosis and grading of PAS. Many clinicians will have different definitions of the terms "accreta", "increta" and "percreta", which could in theory lead to over-diagnosis of PAS [7]. The 2019 classification proposed by FIGO [2] provides clinical and histopathological diagnostic criteria for PAS. Application of this classification will hopefully ensure more homogeneity in the reporting of PAS cases. In particular, FIGO criteria ensure only cases where either a myometrial resection or caesarean hysterectomy was required can be classified as PAS, as cases with placental tissue only, classically seen after a retained placenta, are no longer considered part of this categorisation [2].

Improved understanding of the pathological mechanism of disease and accurate diagnostic criteria are essential to provide safe maternal and foetal care in PAS. It is well established that PAS should be managed within specialist teams, as this is associated with significantly less maternal morbidity [4]. While caesarean hysterectomy has been the mainstay of treatment [10], uterine conservation using en-bloc myometrial and placental resection, in carefully selected cases based on a topographic classification, has recently been described as a safe, effective alternative [11]. Using this technique can lead to uterine conservation in 85% of cases with no increase in blood loss or surgical complications and a shorter operating time compared with hysterectomy [11]. Furthermore, recurrence of PAS in a future pregnancy appears much lower than with other uterine conservation techniques, such as leaving the placenta in situ [11,12]. As we understand more about the underlying mechanism of disease and try to centralise PAS care, it is possible many women will be suitable for uterine conservation with this approach.

While much of the focus in PAS multidisciplinary team (MDT) care has, appropriately, been on improving maternal outcomes by reducing surgical morbidity and blood loss [4,10], recent data highlighted the significant emotional, psychological consequences of PAS, which can persist for months and years after delivery [13–15]. A pregnancy complicated by PAS can be a traumatic and life-changing experience for both women and their support partners, with potential for long-lasting emotional sequalae [14–16]. It therefore seems essential that PAS MDTs begin to integrate a holistic, family-centred approach, addressing the potential psychological and physical consequences of PAS as part of peripartum care. Recommendations from those with the lived experience of PAS suggest simple interventions such as mental health support, continuity of a care provider and more intensive and prolonged postnatal follow-up may alleviate some of these burdens [14].

In conclusion, PAS is a rare pregnancy complication with a rising incidence. Our understanding of this iatrogenic condition has evolved over time and significant improvement in maternal outcomes has been achieved through MDT care. Integrated care pathways, taking a holistic approach, including allied health-care professionals to provide

https://doi.org/10.1016/j.crwh.2023.e00521
Received 15 June 2023; Accepted 16 June 2023
Available online 19 June 2023

psychological and physical support, should form part of standard PAS MDT care.

Contributors

The authors contributed equally to the editorial.

Funding

No funding was received for the writing of this editorial.

Provenance and peer review

This editorial was commissioned and not externally peer reviewed.

Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this editorial.

References

[1] H.C. Bartels, J.D. Postle, P. Downey, D.J. Brennan, Placenta accreta spectrum: a review of pathology, molecular biology, and biomarkers, Dis. Markers 2018 (2018) 1507674.

[2] E. Jauniaux, D. Ayres-de-Campos, J. Langhoff-Roos, K.A. Fox, S. Collins, FIGO classification for the clinical diagnosis of placenta accreta spectrum disorders, Int. J. Gynaecol. Obstet. Off. Organ Int. Fed. Gynaecol. Obstet. 146 (1) (2019) 20–24.

[3] FC Irving, AT Hertig, A study of placenta accreta, Surg Gynecol Obstet. 64 (1937) 178–200.

[4] H.C. Bartels, A.C. Rogers, D. O'Brien, R. McVey, J. Walsh, D.J. Brennan, Association of implementing a multidisciplinary team approach in the management of morbidly adherent placenta with maternal morbidity and mortality, Obstet. Gynecol. 132 (5) (2018) 1167–1176.

[5] J.L. Hecht, R. Baergen, L.M. Ernst, P.J. Katzman, S.M. Jacques, E. Jauniaux, et al., Classification and reporting guidelines for the pathology diagnosis of placenta accreta spectrum (PAS) disorders: recommendations from an expert panel, Mod. Pathol. 33 (12) (2020) 2382–2396.

[6] E. Jauniaux, F. Chantraine, R.M. Silver, J. Langhoff-Roos, FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology, Int. J. Gynaecol. Obstet. Off. Organ Int. Fed. Gynaecol. Obstet. 140 (3) (2018) 265–273.

[7] E. Jauniaux, J.L. Hecht, R.A. Elbarmelgy, R.M. Elbarmelgy, M.M. Thabet, A. M. Hussein, Searching for placenta percreta: a prospective cohort and systematic review of case reports, Am. J. Obstet. Gynecol. 226 (6) (2022), 837.e1-.e13.

[8] B.D. Einerson, J. Comstock, R.M. Silver, D.W. Branch, P.J. Woodward, A. Kennedy, Placenta accreta spectrum disorder: uterine dehiscence, not placental invasion, Obstet. Gynecol. 135 (5) (2020) 1104–1111.

[9] B.D. Einerson, A. Kennedy, R.M. Silver, D.W. Branch, J. Comstock, P.J. Woodward, Ultrasonography of the explanted uterus in placenta accreta spectrum: correlation with intraoperative findings and gross pathology, Obstet. Gynecol. 141 (3) (2023) 544–554.

[10] A.A.F.K. Shamshirsaz, H. Erfani, S.L. Clark, B. Salmanian, B.W. Baker, M. Coburn, A.A. Shamshirsaz, Z.H. Bateni, J. Espinoza, A.A. Nassr, E.J. Popek, S.K. Hui, J. Teruya, C.S. Tung, J.A. Jones, M. Rac, G.A. Dildy, M.A. Belfort, Multidisciplinary team learning in the management of the morbidly adherent placenta: outcome improvements over time, Am. J. Obstet. Gynecol. 216 (6) (2017) 612.e1–612.e5.

[11] A.J. Nieto-Calvache, J.M. Palacios-Jaraquemada, R. Aryananda, N. Basanta, R. Aguilera, J.P. Benavides, et al., How to perform the one-step conservative surgery for placenta accreta spectrum move by move, Am. J. Obstet. Gynecol. MFM. 5 (2) (2023), 100802.

[12] S.J. McCall, C. Deneux-Tharaux, L. Sentilhes, R. Ramakrishnan, S.L. Collins, A. Seco, et al., Placenta accreta spectrum - variations in clinical practice and maternal morbidity between the UK and France: a population-based comparative study, BJOG Int. J. Obstet. Gynaecol. 129 (10) (2022) 1676–1685.

[13] H.C. Bartels, K.M. Mulligan, J.G. Lalor, M.F. Higgins, D.J. Brennan, A life changing experience: an interpretative phenomenological analysis of women's experiences of placenta accreta spectrum, Eur. J. Obstet. Gynecol. Reprod. Biol. 254 (2020) 102–108.

[14] H.C. Bartels, A. Horsch, N. Cooney, D.J. Brennan, J.G. Lalor, Living beyond placenta accreta spectrum: parent's experience of the postnatal journey and recommendations for an integrated care pathway, BMC Pregnancy Childbirth. 22 (1) (2022) 397.

[15] B.D. Einerson, M.H. Watt, B. Sartori, R. Silver, E. Rothwell, Lived experiences of patients with placenta accreta spectrum in Utah: a qualitative study of semi-structured interviews, BMJ Open 11 (11) (2021), e052766.

[16] H.C. Bartels, K. Terlizzi, N. Cooney, A. Kranidi, M. Cronin, J.G. Lalor, et al., Quality of life and sexual function after a pregnancy complicated by placenta accreta spectrum, Aust. N. Z. J. Obstet. Gynaecol. 61 (5) (2021) 708–714.

Helena C. Bartels[a], Donal J. Brennan[b,c,*]

[a] *Dept of UCD Obstetrics and Gynaecology, School of Medicine, University College Dublin, National Maternity Hospital, Holles Street, Dublin 2, Ireland*

[b] *University College Dublin Gynaecological Oncology Group (UCD-GOG), Mater Misericordiae University Hospital and St Vincent's University Hospital, Dublin, Ireland*

[c] *Systems Biology Ireland, University College Dublin, Ireland*

[*] Corresponding author at: UCD School of Medicine, Catherine McAuley Research Centre, Mater Misericordiae University Hospital, Eccles Street, Dublin 7, Ireland.

E-mail address: donal.brennan@ucd.ie (D.J. Brennan).