Ultrasound of the adherent placentae

Sook-Ling Lee, Lay Kok Tan, Wei Ching Tan, Devendra K, Hak-Koon Tan
Department of Obstetrics & Gynaecology, Singapore General Hospital, Singapore 169608, Singapore.

Introduction

In the 2018 FIGO consensus guidelines on abnormal placentation, it has been mentioned that the classification of adherent placentae and invasive placentae into one category makes the interpretation of clinical data more difficult, resulting in wide variability in the prevalence of the different degree of accreta placentation, in the accuracy of prenatal diagnosis, and differences in outcomes. Depending on the depth of trophoblast invasion into the myometrium, these subtypes have been differentiated by pathologists: (i) superficial placenta accreta (also called placenta creta, vera, or adherente), where the villi attach directly to the surface of the myometrium without invading it; (ii) placenta increta, where the villi penetrate deeply into the myometrium up to the external layer; and (iii) placenta percreta, where the invasive villous tissue reaches and penetrates through the uterine serosa. They prefer to use the term Placenta Accreta Spectrum (PAS) disorders to include both adherent and invasive placentation disorders. Our review has included adherent as well as invasive placentation.

Methods

Our department has been performing evaluation of placenta accreta since 2003, and results concurred with operative findings. Classification into subtypes of abnormal placentation was at times almost impossible. 62 cases of placenta accreta and 30 cases of controls were included in this review. There were 35 cases of placenta accreta vera, 18 cases of placenta increta and 9 cases of placenta percreta.

Results

By applying transabdominal (TA) as well as transvaginal (TV) techniques, together with blood flow and meticulous observations, we were able to record the features of abnormal placentation accurately.

Findings included:
(i) Absence of retroplacental hypoechoic space;
(ii) Presence of placental lacunae with flow;
(iii) Abnormal subplacental vasculature with high velocity and low impedance flow;
(iv) Presence of abnormal flow in adjacent organs e.g. bladder. Important points of note include:
(i) Placenta percreta - the above-mentioned features were all very remarkable;
(ii) Placenta increta and accreta - there were no features of differentiation on TA technique;
(iii) In the controls there were 2 cases which the placenta appeared to have invaded into myometrium, leaving only a thin retroplacental hypoechoic line or zone. They were exaggerated placental site reaction; (iv) it would be difficult to be confirmative in certain cases of placenta accreta vera or adherente. We encountered two cases in which our observations concurred very well with histopathological findings. Ultrasound findings included:
(i) Placenta praevia;
(ii) The retroplacental hypoechoic zone, which corresponds to decidua basalis was demonstrated over large area of placental base. It was thin to about 1.2 mm. (i) Case A: First ultrasound at 32 weeks noted a 6 mm subchoniotic clot at inferior edge of placenta. There were few 1mm foci where retroplacental hypoechoic zone were absent. MRI noted few spots where decidua basalis were missing. Intraoperative findings: Uterus appeared normal. Placenta separated easily from uterine wall. Two hours after LSCS, patient was found to have primary PPH. She underwent subtotal hysterectomy. Histopathological findings: Microscopic description: Sections shows implantation of the placenta in the lower uterine segment. This layer was 5 cm in thickness. There were interlayers of decidua between the villi and myometrium at most of the implantation site except focally (A2, A7) where there is evidence of absence of decidua with adherence of placenta directly to the superficial myometrium. Diagnosis Placenta accreta.

Discussion and Conclusion

The current prevailing hypothesis pertaining to the cause of Placenta accreta spectrum is of the opinion that there is a defect at the endometrium–myometrial interface, typically at the site of a prior hysterotomy which leads to a failure of normal decidualization. This allows extravascular trophoblastic infiltration and villous tissue to develop deeply within the myometrium, and to sometimes reach the surrounding pelvic organs. (Jammes et al, 2018). Pigo guidelines also noted: (i) LSCS scar can be large enough to host an entire gestational sac without the villi of the definitive placenta invading into the remaining myometrium or the uterine serosa; (ii) There may be limited access to trained perinatal pathologists in most centers delivering women with PAS disorders and the confusion around simple placental retention reported by both clinicians and pathologists as mild forms of PAS disorders, and clinical descriptions of placental tissue appearing under the serosa of an old scar dehiscence at cesarean delivery as abnormally adherent placenta; (iv) It has been suggested that surgical techniques used for entering and closing the uterus during cesarean delivery could play a role in the etiology of PAS disorders, e.g., single-layer uterine closure versus a multiple overlapping layer type of closure, or locked versus interrupted suturing, or different suture materials. Overall, single-layer closure compared with double-layer closure of the uterine incision is associated with a reduction in mean blood loss and duration of operative procedure, but may be associated with thinner residual myometrium thickness as evaluated by postoperative ultrasound. Features which were observed in the last two mentioned cases required meticulous examination. We had recorded the features as reported in histopathological findings, but we had not made a confirmation of placenta accreta vera as we were also aware that the decidua is not a continuous layer and it becomes thinner with advancing gestation. Absence of the hypoechoic zone is thought to represent a defect in decidual basalis. It has been reported that the diagnosis of mild forms of adherence may only be made by histopathology - 50 cases also had CT or MRI performed to substantiate the diagnosis. Their findings included differential diagnoses. From our observations, we have included in our protocol:
(i) Observations of overt features would facilitate a confirmative diagnosis, as in cases of placenta percreta
(ii) For cases where the decidua basalis is thin and there are focci suggestive of absence of decidua, it has to be classified as suggestive of placenta accreta adherente.
(iii) For cases where the features are not conclusive, a differential diagnosis has to be given.

Results cont’d

(ii) Case B: Retroplacental hypoechoic zone appeared to be present except for few 1mm foci where technologist thought myometrium was very thinned out. Intraoperatively, uterus appeared normal, but placenta could not be separated easily and there appeared to be some engorged vessels at surface of uterus, so decision was made for total hysterectomy. Histopathological findings: Gross examination: The uterus appears intact with smooth serosa. Away from the inferior cut defect at cervix, the placenta seems to extend deeply into myometrial wall, focally reaching 0.4 cm away from the serosal surface. Microscopic description: Placental villi are also adjacent to very thin myometrium without intervening decidua in certain areas. Diagnosis: Placenta accreta.