In case of unsuspected placenta accreta spectrum diagnosed after the birth of the baby, the placenta should be left in situ and an emergency hysterectomy performed. [*New 2018*] **D**

If the placenta fails to separate with the usual measures, leaving it in place and closing, or leaving it in place, closing the uterus and proceeding to a hysterectomy are both associated with less blood loss than trying to separate it. Attempts at removing placenta accreta at caesarean section can lead to massive haemorrhage, high maternal morbidity and possible maternal death. These risks are particularly high when the caesarean section takes place in an environment with no emergency access to blood bank products and expertise in managing placenta accreta.[20,21,122,135] Evidence level 4

9. Clinical governance

9.1 Debriefing

Postnatal follow-up should include debriefing with an explanation of what happened, why it happened and any implications for future pregnancy or fertility. In particular, women where conservative treatment of placenta accreta spectrum has been successful should be informed of the risk of recurrence.

9.2 Training

Raising the awareness about the clinical risk factors of placenta accreta spectrum should be pursued locally, including organising policies or guidelines for flagging up women at risk and arranging for them to see a specialist consultant when suspected.

There should be appropriate training for ultrasound staff in the antenatal diagnosis of placenta accreta spectrum.

9.3 Clinical incident reporting

Any lack of compliance with the care bundle by the clinical team for a woman with either placenta praevia or accreta should be investigated.

There should be written protocols for the identification of and planning further care of women suspected to have placenta accreta spectrum.

10. Recommendations for future research

- A large prospective study comparing the impact on the management of the use of the 'low-lying placenta or placenta praevia' classification with the traditional classification grades of I–IV at different gestations is needed.
- Prospective studies are needed to assess the role of third trimester ultrasound in evaluating the risks of haemorrhage and emergency caesarean section in low-lying placenta and determining the mode of delivery.

- Large prospective population-based studies are needed to assess whether ultrasound is a cost-effective screening tool for placenta accreta spectrum in women with a history of caesarean section(s) presenting with a low-lying placenta or placenta praevia in the second trimester of pregnancy.
- Prospective comparative studies of ultrasound imaging, including transvaginal ultrasound and MRI, are needed to evaluate the diagnostic accuracy for evaluation of the depth and topography of villous invasion in adjacent organs.
- RCTs of optimal timing of delivery for both conditions (placenta praevia and placenta accreta) are needed.
- RCTs of surgical and nonsurgical management strategies for placenta accreta spectrum (including interventional radiology) and comparing conventional versus conservative management, stratified according to the depth and lateral extension of villous myometrial invasion, are needed.
- Future studies on the diagnosis and management of placenta accreta spectrum should use a standardised evidence-based approach, including systematic correlation between ultrasound signs and detailed clinical diagnosis at delivery, and pathologic confirmation of grades of villous invasiveness where possible.

11. Auditable topics

11.1 Placenta praevia

- Antenatal diagnosis of placenta praevia and low lying placenta (100%).
- Antenatal detection and treatment of anaemia (100%).
- Antenatal imaging performed according to hospital policy (100%).
- Appropriate antenatal delivery plan made and documented, to include discussion with a woman and her partner, documentation that the risks and indications for blood transfusion and hysterectomy have been discussed and that concerns, queries or refusals of treatments have been addressed (100%).
- Involvement of local blood bank and haematologist in the care of women with placenta praevia and atypical antibodies (100%).
- Appropriate personnel present at birth (100%).
- Appropriate site for birth (100%).
- Appropriate surgical approaches performed (100%).
- Antenatal steroid administration between 34^{+0} and 35^{+6} weeks of gestation (100%).
- Women requesting elective caesarean section for nonmedical reasons are informed of the risk of placenta praevia and accreta spectrum, and its consequences in future deliveries (100%).

11.2 Placenta accreta spectrum

- Antenatal imaging performed according to hospital policy with diagnosis confirmed at birth (100%).
- Appropriate antenatal delivery plan documented, to include discussions with women and their partners on the risks and indications of blood transfusion and hysterectomy, and having addressed any concerns (100%).
- All elements of the care bundle satisfied before elective surgery in women with placenta accreta spectrum (100%):
  - consultant obstetrician planned and directly supervising the birth
  - consultant anaesthetist planned and directly supervising anaesthetic at the birth

– blood and blood products available
– multidisciplinary involvement in preoperative planning
– discussion and consent includes possible interventions (such as hysterectomy, leaving the placenta in place, cell salvage and interventional radiology)
– local availability of a level 2 critical care bed.

12. Useful links and support groups

- Royal College of Obstetricians and Gynaecologists. *Low-lying placenta after 20 weeks (placenta praevia). Information for you*. London: RCOG; 2018 *[*https://www.rcog.org.uk/en/patients/patient-leaflets/a-low-lying-placenta-after-20-weeks-placenta-praevia/*]*.
- National Childbirth Trust. *Placenta praevia – low-lying placenta* [https://www.nct.org.uk/pregnancy/low-lying-placenta].

References

1. Jauniaux E, Jurkovic D. Placenta accreta: pathogenesis of a 20th century iatrogenic uterine disease. *Placenta* 2012;33:244–51.
2. Solheim KN, Esakoff TF, Little SE, Cheng YW, Sparks TN, Caughey AB. The effect of cesarean delivery rates on the future incidence of placenta previa, placenta accreta, and maternal mortality. *J Matern Fetal Neonatal Med* 2011;24:1341–6.
3. Bowman ZS, Eller AG, Bardsley TR, Greene T, Varner MW, Silver RM. Risk factors for placenta accreta: a large prospective cohort. *Am J Perinatol* 2014;31:799–804.
4. Vintzileos AM, Ananth CV, Smulian JC. Using ultrasound in the clinical management of placental implantation abnormalities. *Am J Obstet Gynecol* 2015;213:S70–7.
5. Silver RM. Abnormal placentation: Placenta previa, vasa previa and placenta accreta. *Obstet Gynecol* 2015;126:654–68.
6. Jauniaux E, Campbell S. Ultrasonographic assessment of placental abnormalities. *Am J Obstet Gynecol* 1990;163:1650–8.
7. Ballas S, Gitstein S, Jaffa AJ, Peyser MR. Midtrimester placenta previa: normal or pathologic finding. *Obstet Gynecol* 1979;54:12–4.
8. Reddy UM, Abuhamad AZ, Levine D, Saade GR; Fetal Imaging Workshop Invited Participants. Fetal imaging: Executive summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology, and Society of Radiologists in Ultrasound Fetal Imaging Workshop. *J Ultrasound Med* 2014;33:745–57.
9. Vahanian SA, Lavery JA, Ananth CV, Vintzileos A. Placental implantation abnormalities and risk of preterm delivery: a systematic review and metaanalysis. *Am J Obstet Gynecol* 2015;213:S78–90.
10. Ruiter L, Eschbach SJ, Burgers M, Rengerink KO, van Pampus MG, Goes BY, et al. Predictors for emergency cesarean delivery in women with placenta previa. *Am J Perinatol* 2016;33:1407–14.
11. Irving C, Hertig AT. A study of placenta accreta. *Surg Gynec Obst* 1937;64:178–200.
12. Luke RK, Sharpe JW, Greene RR. Placenta accreta: the adherent or invasive placenta. *Am J Obstet Gynecol* 1966;95:660–8.
13. Fox H, Sebire NJ, editors. *Pathology of the Placenta. 3rd edition*. Philadelphia: Saunders-Elsevier; 2007.
14. Benirschke K, Burton GJ, Baergen RN, editors. *Pathology of the Human Placenta*. 6th ed. Berlin: Springer-Verlag; 2012.
15. Zosmer N, Jauniaux E, Bunce C, Panaiotova J, Shaikh H, Nicholaides KH. Interobserver agreement on standardized ultrasound and histopathologic signs for the prenatal diagnosis of placenta accreta spectrum disorders. *Int J Gynaecol Obstet* 2018;140:326–31.
16. Jauniaux E, Collins SL, Jurkovic D, Burton GJ. Accreta placentation: a systematic review of prenatal ultrasound imaging and grading of villous invasiveness. *Am J Obstet Gynecol* 2016;215:712–21.
17. Jauniaux E, Collins S, Burton GJ. Placenta accreta spectrum: pathophysiology and evidence-based anatomy for prenatal ultrasound imaging. *Am J Obstet Gynecol* 2018;218:75–87.
18. Collins SL, Chantraine F, Morgan TK, Jauniaux E. Abnormally adherent and invasive placenta: a spectrum disorder in need of a name. *Ultrasound Obstet Gynecol* 2018;51:165–6.
19. O'Brien JM, Barton JR, Donaldson ES. The management of placenta percreta: conservative and operative strategies. *Am J Obstet Gynecol* 1996;175:1632–8.
20. Bowman ZS, Manuck TA, Eller AG, Simons M, Silver RM. Risk factors for unscheduled delivery in patients with placenta accreta. *Am J Obstet Gynecol* 2014;210:241.e1–6.
21. Shamshirsaz AA, Fox KA, Salmanian B, Diaz-Arrastia CR, Lee W, Baker BW, et al. Maternal morbidity in patients with morbidly adherent placenta treated with and without a standardized multidisciplinary approach. *Am J Obstet Gynecol* 2015;212:218.e1-9
22. Shamshirsaz AA, Fox KA, Erfani H, Clark SL, Salmanian B, Baker BW, et al. Multidisciplinary team learning in the management of the morbidly adherent placenta: outcome improvements over time. *Am J Obstet Gynecol* 2017;216:612.e1–e5.
23. Ananth CV, Smulian JC, Vintzileos AM. The association of placenta previa with history of cesarean delivery and abortion: a meta-analysis. *Am J Obstet Gynecol* 1997;177:1071–8.
24. Marshall NE, Fu R, Guise JM. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. *Am J Obstet Gynecol* 2011;205:262.e1–8.
25. Klar M, Michels KB. Cesarean section and placental disorders in subsequent pregnancies–a meta-analysis. *J Perinat Med* 2014;42:571–83.

26. Getahun D, Oyelese Y, Salihu HM, Ananth CV. Previous cesarean delivery and risks of placenta previa and placental abruption. *Obstet Gynecol* 2006;107:771–8.
27. Downes KL, Hinkle SN, Sjaarda LA, Albert PS, Grantz KL. Previous prelabor or intrapartum cesarean delivery and risk of placenta previa. *Am J Obstet Gynecol* 2015;212:669.e1–6.
28. Ananth CV, Demissie K, Smulian JC, Vintzileos AM. Placenta praevia in singleton and twin births in the United States, 1989 through 1998: a comparison of risk factor profiles and associated conditions. *Am J Obstet Gynecol* 2003;188:275–81.
29. Weis MA, Harper LM, Roehl KA, Odibo AO, Cahill AG. Natural history of placenta previa in twins. *Obstet Gynecol* 2012;120: 753–8.
30. Grady R, Alavi N, Vale R, Khandwala M, McDonald SD. Elective single embryo transfer and perinatal outcomes: a systematic review and meta-analysis. *Fertil Steril* 2012;97:324–31.
31. Korosec S, Ban Frangez H, Verdenik I, Kladnik U, Kotar V, Virant-Klun I, et al. Singleton pregnancy outcomes after in vitro fertilization with fresh or frozen-thawed embryo transfer and incidence of placenta praevia. *Biomed Res Int* 2014;2014:431797.
32. Qin J, Liu X, Sheng X, Wang H, Gao S. Assisted reproductive technology and the risk of pregnancy-related complications and adverse pregnancy outcomes in singleton pregnancies: a meta-analysis of cohort studies. *Fertil Steril* 2016;105:73–85.e1–6.
33. Karami M, Jenabi E, Fereidooni B. The association of placenta previa and associated reproductive techniques: a meta-analysis. *J Matern Fetal Neonatal Med* 2017;284:47–51.
34. Shobeiri F, Jenabi E. Smoking and placenta previa: a meta-analysis. *J Matern Fetal Neonatal Med* 2017;30:2985–90.
35. Rosenberg T, Pariente G, Sergienko R, Wiznitzer A, Sheiner E. Critical analysis of risk factors and outcome of placenta previa. *Arch Gynecol Obstet* 2011;284:47–51.
36. National Institute of Health and Care Excellence. *Antenatal Care for Uncomplicated Pregnancies.* Clinical Guideline 62. Manhester: NICE; 2017.
37. UK National Screening Committee. *Screening for Vasa Praevia in the Second Trimester of Pregnancy. External Review Against Programme Appraisal Criteria for the UK National Screening Committee* (UK NSC). London: UK NSC; 2017.
38. Dashe JS, McIntire DD, Ramus RM, Santos-Ramos R, Twickler DM. Persistence of placenta previa according to gestational age at ultrasound detection. *Obstet Gynecol* 2002;99:692–7.
39. Cho JY, Lee YH, Moon MH, Lee JH. Difference in migration of placenta according to the location and type of placenta previa. *J Clin Ultrasound* 2008;36:79–84.
40. Eichelberger KY, Haeri S, Kessler DC, Swartz A, Herring A, Wolfe HM. Placenta previa in the second trimester: sonographic and clinical factors associated with its resolution. *Am J Perinatol* 2011;28:735–9.
41. Copland JA, Craw SM, Herbison P. Low-lying placenta: who should be recalled for a follow-up scan? *J Med Imaging Radiat Oncol* 2012;56:158–62.
42. Robinson AJ, Muller PR, Allan R, Ross R, Baghurst PA, Keirse MJ. Precise mid-trimester placenta localisation: does it predict adverse outcomes? *Aust N Z J Obstet Gynaecol* 2012;52:156–60.
43. Lal AK, Nyholm J, Wax J, Rose CH, Watson WJ. Resolution of complete placenta previa: does prior cesarean delivery matter? *J Ultrasound Med* 2012;31:577–80.
44. Kapoor S, Thomas JT, Petersen SG, Gardener GJ. Is the third trimester repeat ultrasound scan for placental localisation needed if the placenta is low lying but clear of the os at the mid-trimester morphology scan? *Aust N Z J Obstet Gynaecol* 2014;54:428–32.
45. Quant HS, Friedman AM, Wang E, Parry S, Schwartz N. Transabdominal ultrasonography as a screening test for second-trimester placenta previa. *Obstet Gynecol* 2014;123:628–33.
46. Heller HT, Mullen KM, Gordon RW, Reiss RE, Benson CB. Outcomes of pregnancies with a low-lying placenta diagnosed on second-trimester sonography. *J Ultrasound Med* 2014;33:691–6.
47. Kohari KS, Roman AS, Fox NS, Feinberg J, Saltzman DH, Klauser CK, et al. Persistence of placenta previa in twin gestations based on gestational age at sonographic detection. *J Ultrasound Med* 2012;31:985–9.
48. Sherman SJ, Carlson DE, Platt LD, Medearis AL. Transvaginal ultrasound: does it help in the diagnosis of placenta previa? *Ultrasound Obstet Gynecol* 1992;2:256–60.
49. Mustafá SA, Brizot ML, Carvalho MH, Watanabe L, Kahhale S, Zugaib M. Transvaginal ultrasonography in predicting placenta previa at delivery: a longitudinal study. *Ultrasound Obstet Gynecol* 2002;20:356–9.
50. Becker RH, Vonk R, Mende BC, Ragosch V, Entezami M. The relevance of placental location at 20-23 gestational weeks for prediction of placenta previa at delivery: evaluation of 8650 cases. *Ultrasound Obstet Gynecol* 2001;17:496–501.
51. Oppenheimer L, Holmes P, Simpson N, Dabrowski A. Diagnosis of low-lying placenta: can migration in the third trimester predict outcome? *Ultrasound Obstet Gynecol* 2001;18:100–2.
52. Taipale P, Hiilesmaa V, Ylöstalo P. Transvaginal ultrasonography at 18-23 weeks in predicting placenta praevia at delivery. *Ultrasound Obstet Gynecol* 1998;12:422–5.
53. Lauria MR, Smith RS, Treadwell MC, Comstock CH, Kirk JS, Lee W, et al. The use of second-trimester transvaginal sonography to predict placenta previa. *Ultrasound Obstet Gynecol* 1996;8:337–40.
54. Smith RS, Lauria MR, Comstock CH, Treadwell MC, Kirk JS, Lee W, et al. Transvaginal ultrasonography for all placentas that appear to be low-lying or over the internal cervical os. *Ultrasound Obstet Gynecol* 1997;9:22–4.
55. Leerentveld RA, Gilberts EC, Arnold MJ, Wladimiroff JW. Accuracy and safety of transvaginal sonographic placental localization. *Obstet Gynecol* 1990;76:759–62.
56. Conde-Agudelo A, Romero R. Predictive accuracy of changes in transvaginal sonographic cervical length over time for preterm birth: a systematic review and metaanalysis. *Am J Obstet Gynecol* 2015;213:789–801.
57. Ghi T, Contro E, Martina T, Piva M, Morandi R, Orsini LF, et al. Cervical length and risk of antepartum bleeding in women with complete placenta previa. *Ultrasound Obstet Gynecol* 2009;33:209–12.
58. Zaitoun MM, El Behery MM, Abd El Hameed AA, Soliman BS. Does cervical length and the lower placental edge thickness measurement correlates with clinical outcome in cases of complete placenta previa? *Arch Gynecol Obstet* 2011;284:867–73.
59. Mimura T, Hasegawa J, Nakamura M, Matsuoka R, Ichizuka K, Sekizawa A, et al. Correlation between the cervical length and the amount of bleeding during cesarean section in placenta previa. *J Obstet Gynaecol Res* 2011;37:830–5.
60. Sekiguchi A, Nakai A, Okuda N, Inde Y, Takeshita T. Consecutive cervical length measurements as a predictor of preterm cesarean section in complete placenta previa. *J Clin Ultrasound* 2015;43:17–22.
61. Neilson JP. Interventions for suspected placenta praevia. *Cochrane Database Syst Rev* 2003;(2):CD001998.
62. Wing DA, Paul RH, Millar LK. Management of the symptomatic placenta previa: a randomized, controlled trial of inpatient versus outpatient expectant management. *Am J Obstet Gynecol* 1996;175:806–11.

63. Pivano A, Alessandrini M, Desbriere R, Agostini A, Opinel P, d'Ercole C, et al. A score to predict the risk of emergency caesarean delivery in women with antepartum bleeding and placenta praevia. *Eur J Obstet Gynecol Reprod Biol* 2015;195: 173–6.
64. Lal AK, Hibbard JU. Placenta previa: an outcome-based cohort study in a contemporary obstetric population. *Arch Gynecol Obstet* 2015;292:299–305.
65. Nørgaard LN, Pinborg A, Lidegaard Ø, Bergholt T. A Danish national cohort study on neonatal outcome in singleton pregnancies with placenta previa. *Acta Obstet Gynecol Scand* 2012;91:546–51.
66. Roberts D, Brown J, Medley N, Dalziel SR. Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. *Cochrane Database Syst Rev* 2017;3: CD004454.
67. Gyamfi-Bannerman C, Thom EA, Blackwell SC, Tita AT, Reddy UM, Saade GR, et al.; NICHD Maternal–Fetal Medicine Units Network. Antenatal betamethasone for women at risk for late preterm delivery. *N Engl J Med* 2016;374:1311–20.
68. Zlatnik MG, Little SE, Kohli P, Kaimal AJ, Stotland NE, Caughey AB. When should women with placenta previa be delivered? A decision analysis. *J Reprod Med* 2010;55:373–81.
69. Bose DA, Assel BG, Hill JB, Chauhan SP. Maintenance tocolytics for preterm symptomatic placenta previa: a review. *Am J Perinatol* 2011;28:45–50.
70. Verspyck E, de Vienne C, Muszynski C, Bubenheim M, Chanavaz-Lacheray I, Dreyfus M, et al. Maintenance nifedipine therapy for preterm symptomatic placenta previa: A randomized, multicenter, double-blind, placebo-controlled trial. *PLoS One* 2017;23:e0173717.
71. American College of Obstetricians and Gynaecologists. ACOG committee opinion no. 560: Medically indicated late-preterm and early-term deliveries. *Obstet Gynecol* 2013;121:908–10.
72. Spong CY, Mercer BM. D'alton M, Kilpatrick S, Blackwell S, Saade G. Timing of indicated late-preterm and early-term birth. *Obstet Gynecol* 2011;118:323–33.
73. Zlatnik MG, Cheng YW, Norton ME, Thiet MP, Caughey AB. Placenta previa and the risk of preterm delivery. *J Matern Fetal Neonatal Med* 2007;20:719–23.
74. Balayla J, Wo BL, Bédard MJ. A late-preterm, early-term stratified analysis of neonatal outcomes by gestational age in placenta previa: defining the optimal timing for delivery. *J Matern Fetal Neonatal Med* 2015;28:1756–61.
75. Bhide A, Prefumo F, Moore J, Hollis B, Thilaganathan B. Placental edge to internal os distance in the late third trimester and mode of delivery in placenta praevia. *BJOG* 2003;110:860–4.
76. Ghourab S. Third-trimester transvaginal ultrasonography in placenta previa: does the shape of the lower placental edge predict clinical outcome? *Ultrasound Obstet Gynecol* 2001;18: 103–8.
77. Saitoh M, Ishihara K, Sekiya T, Araki T. Anticipation of uterine bleeding in placenta previa based on vaginal sonographic evaluation. *Gynecol Obstet Invest* 2002;54:37–42.
78. Taga A, Sato Y, Sakae C, Satake Y, Emoto I, Maruyama S, et al. Planned vaginal delivery versus planned cesarean delivery in cases of low-lying placenta. *J Matern Fetal Neonatal Med* 2017;30:618–22.
79. Vergani P, Ornaghi S, Pozzi I, Beretta P, Russo FM, Follesa I, et al. Placenta previa: distance to internal os and mode of delivery. *Am J Obstet Gynecol* 2009;201:266.e1–5.
80. Nakamura M, Hasegawa J, Matsuaka R, Mimura T, Ichizuka K, Sekizawa A, et al. Amount of hemorrhage during vaginal delivery correlates with length from placental edge to external os in cases with low-lying placenta whose length between placental edge and internal os was 1-2 cm. *J Obstet Gynaecol Res* 2012;38:1041–5.
81. Al Wadi K, Schneider C, Burym C, Reid G, Hunt J, Menticoglou S. Evaluating the safety of labour in women with a placental edge 11 to 20 mm from the internal cervical Os. *J Obstet Gynaecol Can* 2014;36:674–7.
82. Wortman AC, Twickler DM, McIntire DD, Dashe JS. Bleeding complications in pregnancies with low-lying placenta. *J Matern Fetal Neonatal Med* 2016;29:1367–71.
83. Royal College of Obstetricians and Gynaecologists. *Caesarean Section.* Consent Advice No. 7. London: RCOG; 2009.
84. Thomas J, Paranjothy S, editors. *The National Sentinel Caesarean Section Audit Report.* London: RCOG Press; 2001.
85. Baba Y, Matsubara S, Ohkuchi A, Usui R, Kuwata T, Suzuki H, et al. Anterior placentation as a risk factor for massive hemorrhage during cesarean section in patients with placenta previa. *J Obstet Gynaecol Res* 2014;40:1243–8.
86. Gibbins KJ, Einerson BD, Varner MW, Silver RM. Placenta previa and maternal haemorrhagic morbidity. *J Matern Fetal Neonatal Med* 2018;31:494–9.
87. Mavrides E, Allard S, Chandraharan E, Collins P, Green L, Hunt BJ, et al. on behalf of the Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum haemorrhage. *BJOG* 2016;124:e106–49.
88. Royal College of Obstetricians and Gynaecologists. *Blood Transfusions in Obstetrics.* Green-top Guideline No. 47. London: RCOG; 2015.
89. Madsen K, Grønbeck L, Rifbjerg Larsen C, Østergaard J, Bergholt T, Langhoff-Roos J, et al. Educational strategies in performing cesarean section. *Acta Obstet Gynecol Scand* 2013;92:256–63.
90. Pelosi MA, Apuzzio J, Fricchione D, Gowda VV. The "intra-abdominal version technique" for delivery of transverse lie by low-segment caesarean section. *Am J Obstet Gynecol* 1979;135:1009–11.
91. Hong JY, Jee YS, Yoon HJ, Kim SM. Comparison of general and epidural anesthesia in elective cesarean section for placenta pevia totalis: maternal hemodynamics, blood loss and neonatal outcome. *Int J Obstet Anesth* 2003;12:12–6.
92. Butwick AJ, Carvalho B, El-Sayed YY. Risk factors for obstetric morbidity in patients with uterine atony undergoing caesarean delivery. *Br J Anaesth* 2014;113:661–8.
93. Goucher H, Wong CA, Patel SK, Toledo P. Cell salvage in obstetrics. *Anesth Analg* 2015;121:465–8.
94. Morikawa M, Kuramoto A, Nakayama M, Oguchi H, Hasegawa M, Funakoshi T, et al. Intraoperative red cell salvage during obstetric surgery in 50 Japanese women. *Int J Gynaecol Obstet* 2015;128:256–9.
95. Verspyck E, Douysset X, Roman H, Marret S, Marpeau L. Transecting versus avoiding incision of the anterior placenta previa during cesarean delivery. *Int J Gynaecol Obstet* 2015;128:44–7.
96. Zou L, Zhong S, Zhao Y, Zhu J, Chen L. Evaluation of "J"-shaped uterine incision during caesarean section in patients with placenta previa: a retrospective study. *J Huazhong Univ Sci Technolog Med Sci* 2010;30:212–6.
97. Kumru P, Demirci O, Erdogdu E, Arısoy R, Ertekin AA, Tugrul S, et al. The Bakri balloon for the management of postpartum hemorrhage in cases with placenta previa. *Eur J Obstet Gynecol Reprod Biol* 2013;167:167–70.
98. Beckmann MM, Chaplin J. Bakri balloon during cesarean delivery for placenta previa. *Int J Gynaecol Obstet* 2014;124:118–22.
99. Cho HY, Park YW, Kim YH, Jung I, Kwon JY. Efficacy of intrauterine Bakri balloon tamponade in cesarean section for placenta previa patients. *PLoS One* 2015;10:e0134282.

