Recieved: 10 April 2015/ Accepted: 20 April 2015/ Published online: 15 June 2015

The Unified Approach to the Management of Patients with Premature Detachment of the Normally Situated Placenta

Tomiris A. Amirkhan [1] ; http://orcid.org/0000-0003-4836-6557
E-mail: tomiris93almaty@mail.ru

Sergei O. Shabelyanov [1] ; http://orcid.org/0000-0002-9496-2105

Marat Sh. Mukhamediev [1] ; http://orcid.org/0000-0002-8087-4941

[1] Department of Obstetrics and Gynecology № 1, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

ABSTRACT

One of the actual problems of modern clinical medicine is coagulopathic bleedings in premature detachment of normally situated placenta, which complicate pregnancy in 1-2% of cases. In recent decades, their frequency increases. The frequency of occurrence of the premature detachment of normally situated placenta (PDNSP) on the average makes 0.5% of all pregnancies. According to the histological investigations of the placenta after parturition meets much more often: up to 2.1-3.8% of all parturitions.

KEYWORDS

Abruptio Placentae, Placenta Previa, Placenta Accreta, Disseminated Intravascular Coagulation

INTRODUCTION

Placental abruption is defined as all the cases of premature detachment of the placenta from its places of attachment which occurs prepartum - during pregnancy or childbirth. [1, 12].

Classification

1. Mild degree - no signs of deterioration of the mother or the fetus;

2. Moderate degree - signs of the deterioration of the mother and fetus;

3. Severe degree - with the death of the fetus.

A - without coagulopathies (2\3);

B - with coagulopathy (1\3).

Depending on the area, there is partial and complete detachment of the placenta. In partial detachment of the placenta: part of the entire placenta exfoliates from the uterine wall; in complete, the entire placenta. Partial PDNSP can be marginal when the edge of the placenta exfoliates or central, when the central part exfoliates respectively. Partial detachment of the placenta can be progressing or not progressing. The evaluation of the severity of prenatal bleeding (placental and / or uterine) is not established with evidence- based guidelines. The severity is recognized by the amount of blood loss and often underestimated, while there is no way to assess the amount of blood lost into the cavity, cannot present a total blood loss. An important indicator of the amount of bleeding is the risk for fetal disorders or even fetal death. [1, 2, 3, 25, 26].

Risk factors

Risk factors for placental abruption may include the following: 1) vascular (vasculopathy, angiopathy of placental bed, surface cytotrophoblast invasion in the defective endometrium); 2) hemostatic (thrombophilia); and 3) mechanical (trauma, obstetrical complications and manipulations).

- During pregnancy: vascular extragenital pathology (hypertension, glomerulonephritis); endocrinopathies (diabetes); autoimmune conditions (antiphospholipid syndrome, systemic lupus erythematosus); combined preeclampsia on the background of glomerulonephritis; infectious and allergic vasculitis; thrombophilia, genetic defects of hemostasis, predisposing to thrombosis.

- Placental abruption in the previous pregnancies, in the anamnesis - from 1.0% to 1.4% [9, 10, 22, 23];

- The bleeding in the first trimester, as well as the presence of retroplacental hematoma on ultrasonography, increases the risk of placental abruption [10, 13, 24];

- Other risk factors for placental abruption include: pre-eclampsia, pelvic presentation, polyhydramnios, oligohydramnios, prenatal amniorrhea, intrauterine

growth restriction syndrome (IUGR), multiparous [21], pregnancy resulted from assisted reproductive technologies [17], abdominal trauma, smoking and misuse of medications during pregnancy, drug abuse [2, 6, 13, 16].

- During parturition: amniorrhea during polyhydramnios; uterine hyperstimulation with oxytocin; birth of the first fetus in multiple pregnancy; short umbilical cord; chorioamnionitis. Forcible placental abruption in result of falling and injury, external obstetric rotation, amniocentesis is possible.

Diagnostics

Ultrasound signs of placental abruption has a low prognostic value. The diagnosis of placental abruption is largely a clinical one. Caesarean section should not be delayed for conducting an ultrasound if there is clinical evidence of an unstable condition for the mother and the fetus. The absence of retroplacental hematoma on ultrasound does not rule out placental abruption (in 20% of cases - is not visualised) [11, 19].

MAIN BODY

The management of patients with premature detachment of normally situated placenta

Primary actions at progressing placental abruption described in Figure 1 [27-30].

Basic actions at moderate and severe degree of placental abruption, in the absence of parturient activities are the following: 1) deploy the operation unit (no more than 20 min); 2) regardless of the duration of pregnancy, an emergency surgical delivery by cesarean section [27-30].

Primary actions at mild degree of abruption in the first and second stage of parturition include: 1) there may be vaginal delivery, if the condition of the mother and fetus are stable; 2) continuous monitoring of the hemodynamic parameters of mother; 3) continuous monitoring of the fetus condition (CTG) [27-30].

Basic actions at moderate degree of placental abruption in the first stage of parturition are the following: regardless of the duration of pregnancy, an emergency surgical delivery by cesarean section [27-30].

Primary actions at severe degree of placental abruption in the first stage of parturition include: 1) operative vaginal births, If there are conditions for its carrying out: if it is possible to achieve adequate progress of parturition or the end of the first stage of parturition, and it is possible to maintain a stable condition of the mother, the doctor has the skill for carrying out an operative vaginal birth; 2) emergency caesarean section in the absence of conditions for a vaginal birth and/or there is testimony from the mother; 3) if on the testimony of the mother is necessary to conduct Caesarean section in the presence of coagulopathy, primarily, before the operation, must be entered the fresh frozen plasma [27-30].

Basic actions at moderate degree of placental abruption in the second stage of parturition described in Figure 2 [27-30].

Basic actions at severe degree of placental abruption in the second stage of parturition include: 1) operative vaginal births, If there are conditions for its carrying out: have the opportunity to maintain a stable condition of the mother, the doctor has the skill for carrying out an operative vaginal childbirth (emergency extraction of the fetus); 2) emergency caesarean section in the absence of conditions for a vaginal birth and/or there is testimony from the mother; 3) if on the testimony of the mother is necessary to conduct Caesarean section in the presence of coagulopathy, primarily, before the operation, must be entered the fresh frozen plasma [27-30].

Primary actions at placental abruption and the presence of coagulopathy are the following:

If on the testimony of the mother is necessary to conduct Caesarean section in the presence of coagulopathy the fresh frozen plasma must be administered, primarily, before the operation. In severe coagulopathy, antifibrinolytic therapy (Tranexam) (Level C) may have a significant positive effect. Additionally, if it is indicated, platelet, red blood cell mass should be introduced and if available cryoprecipitate also [27, 28, 30].

Basic actions at placental abruption and the presence of coagulopathy include:

If on the testimony of the mother is necessary to conduct Caesarean section in the presence of

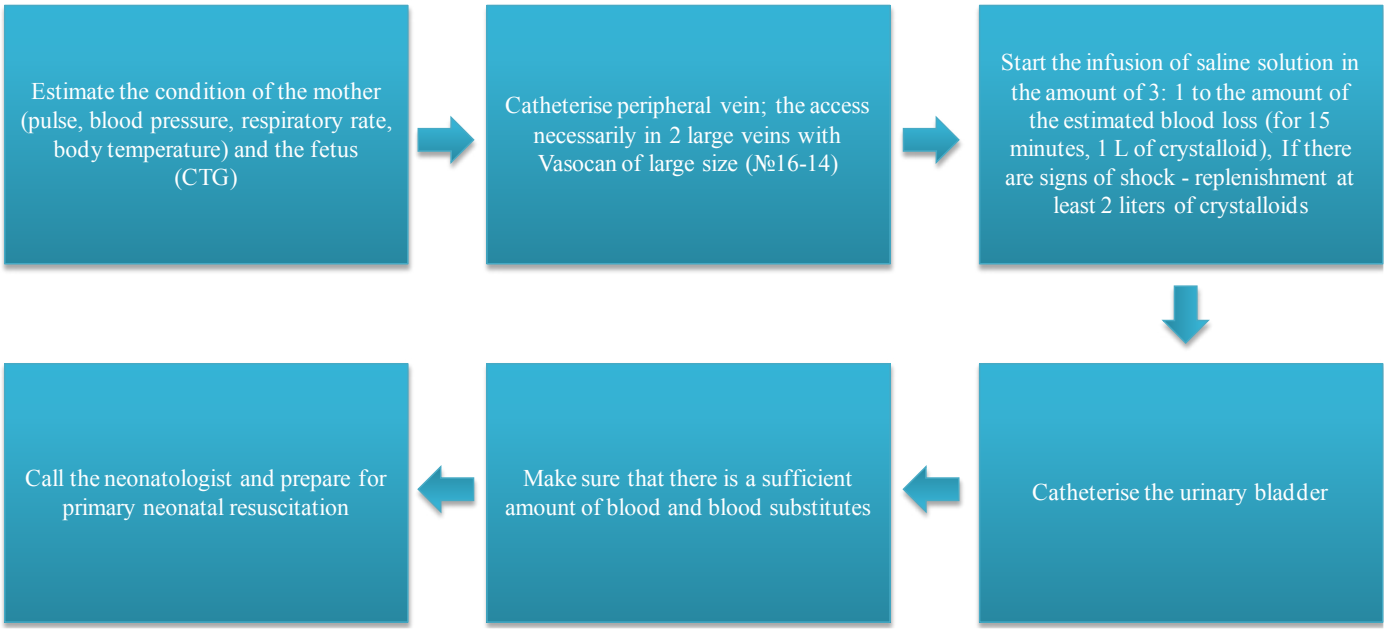

Figure 1. Algorithm of actions at progressing placental abruption

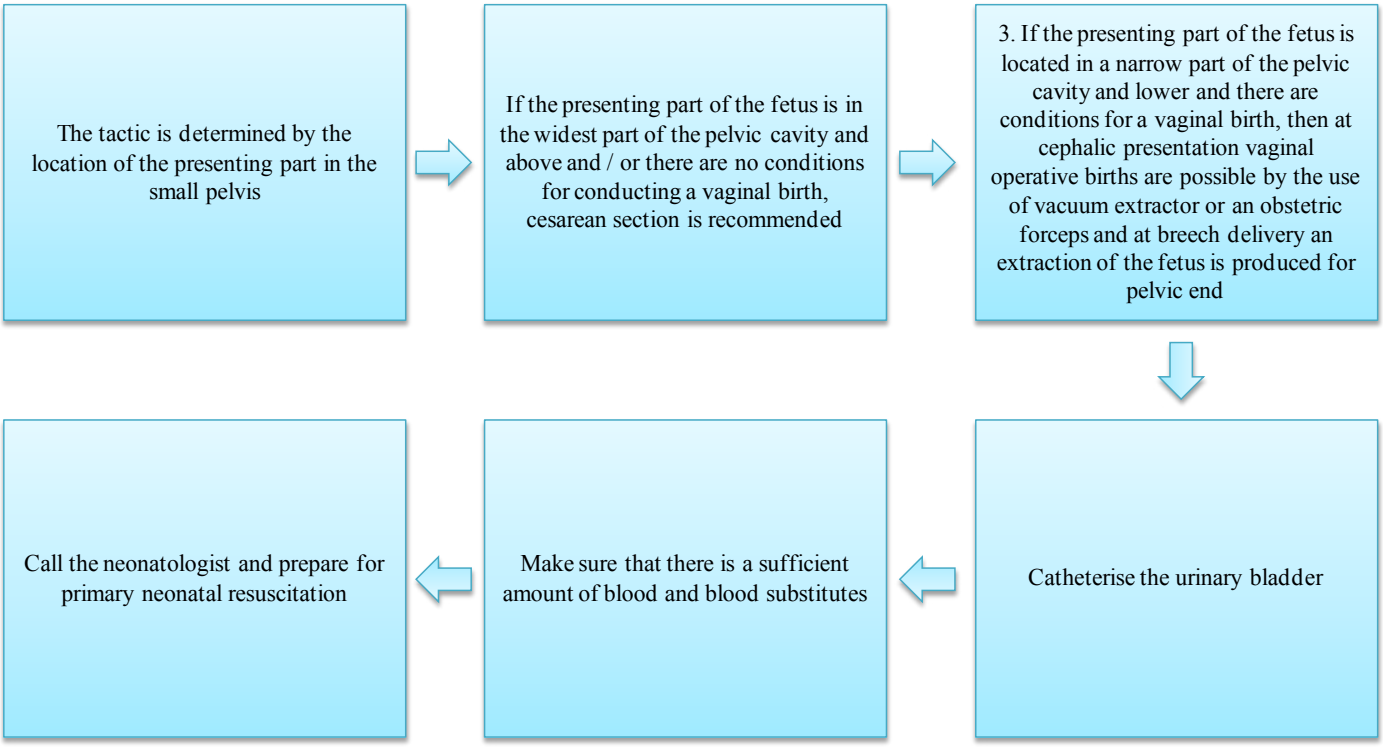

Figure 2. Algorithm of actions at moderate degree of placental abruption in the second stage of parturition

coagulopathy, primarily, before the operation, must be entered the fresh frozen plasma. In severe coagulopathy, especially positive effect may have antifibrinolytic therapy (Tranexam) and additional introduction by indications the platelet, red blood cell mass and cryoprecipitate if available [17, 18, 20, 29].

In case of a postpartum hypotonic bleeding, start infusion of Oxytocin of 20 units to a 1000 ml of saline (at a rate of 60 drops per minute and not more than 3 L). In the absence of the effect from Oxytocin, sequentially administered Methylergometrin 0.2 mg IV or IM up to 5 doses (1.0 mg) (contraindicated in severe preeclampsia), Enzaprost 2.5-5 mg into the muscle of the uterus up to 8 doses (20 mg) and Misoprostol in a dosage of 800-1000mkg per rectum. Changing the course of uterotonic drugs should be determined by clinical effect. In case of continues bleeding use the

mechanical methods to stop bleeding: compression of the aorta, bimanual compression of the uterus. In the absence of the effect of above-mentioned measures to cessation of bleeding, required a laparotomy in order to conduct surgical haemostasis: compression sutures, B-Lynch sutures, ligation of the major vessels (uterine, ovarian); ligation of the internal iliac vessels (in the presence of trained surgeons) [4, 5, 7, 8, 13, 14, 19].

If the woman's condition is unstable, there are significant changes in the blood coagulation system markers, the uterus is badly reduced, total or subtotal hysterectomy and abdominal drainage should be performed on the background of coagulation regulation. Hysterectomy during a bleeding should be carried out before any hemodynamic disturbances. Reimplementation of methods proven ineffective in the first implementation is unacceptable.

Upon detection of Couvelaire uterus during laparotomy, it is recommended to: caesarean section in the first stage, treating with uterotonics and imposing compressive sutures by the B-Lynch. If the surgeon has sufficient experience of carrying out surgical hemostasis, he can conduct the ligation of tubal and internal iliac artery. If within 30 minutes of observation and conducting of surgical hemostasis there are no significant changes in the indicators of the blood coagulation system and the uterus is well reduced, council a physician on the issue of preservation of the uterus, in so far as after childbirth imbibed blood resorbed spontaneously (D). In case of continuous bleeding and in absence of the effect of surgical total or subtotal hysterectomy and abdominal drainage haemostasis should be carried out [3, 19]. The infusion of blood components in the presence of indications: Fresh frozen plasma (FFP), packed red blood cells, anti-fibrinolytic therapy with intravenous administration of tranexamic acid (level C) 500-1000mg for 200 ml of saline [4, 5, 17, 18, 20].

CONCLUSION

Due to the urgency of the topic for the modern obstetrics, it is necessary that each obstetrician knows effective measures for the prevention, early diagnosis, identification and management of patients at the given pathology.

ACKNOWLEDGEMENTS

None

REFERENCES

1. Denisova IN, Ulumbekova EG. Prezhdevremennaia otsloika platsenty (Premature detachment of the placenta). 2005, pp. 637-639.

2. Serov VN, Markin SA. Kriticheskie sostoianiia v akusherstve (Critical states in obstetrics). 2003, pp. 521-528.

3. Radzinsky VYe, Savelyeva GM. Akusherstvo. Nacional'nie rekomendacii. (Obstetrics. National guidelines). 2009, pp. 669-685.

4. B-Lynch C, Coker A, Lawal AH, Abu J, Cowen MJ. The B-Lynch surgical technique for the control of massive post-partum haemorrhage: an alternative to hysterectomy? Five cases reported. Br J Obstet Gynaecol. 1997; 104 (3): 372-375.

5. Cho JH, Jun HS, Lee CN. Haemostatic suturing technique for uterine bleeding during cesarean delivery. Obstet Gynecol. 2000; 96 (1): 129-131.

6. Neilson JP. Interventions for treating placental abruption. Cochrane Database Syst Rev. 2003; (1): CD003247.

7. Kennare R, Heard A, Chan A. Substance use during pregnancy: risk factors and obstetric and perinatal outcomes in South Australia. Aust N Z J Obstet Gynaecol. 2005; 45 (3): 220-225.

8. Calleja-Agius J, Custo R, Brincat MP, Calleja N. Placental abruption and placenta praevia. Eur Clin Obstet Gynaecol. 2006; 2: 121–127.

9. Wu O, Robertson L, Langhorne P, Twaddle S, Clark P, Lowe GD. Thrombosis: Risk and Economic Assessment of Thrombophilia Screening (TREATS) Study. Thrombophilia in pregnancy: a systematic review. Br J Haematol. 2006; 132: 171–96.

10. Ghezzi F, Cromi A, Uccella S, Raio L, Bolis P, Surbek D. The Hayman technique: a simple method to treat postpartum haemorrhage. BJOG. 2007; 114 (3): 362–365.

11. Baskett TF. Uterine compression sutures for post-partum haemorrhage efficacy. Morbidity and Subsequent Pregnancy. Obstet Gynecol. 2007; 110 (1): 68-71.

12. Harlev A, Levy A, Zaulan Y, Koifman A, Mazor M, Wiznitzer A, Faizayev E, Sheiner E. Idiopathic bleeding during the second half of pregnancy as a risk factor for adverse perinatal outcome. J Matern Fetal Neonatal Med. 2008; 21 (5): 331-335.

13. Odibo AO, Cahill AG, Stamilio DM, Stevens EJ, Peipert JF, Macones GA. Predicting placental abruption and previa in women with a previous cesarean delivery. Am J Perinatol. 2007; 24 (5): 299-305.

14. van Oppenraaij RH, Jauniaux E, Christiansen OB, Horcajadas JA, Farquharson RG, Exalto N; ESHRE Special Interest Group for Early Pregnancy (SIGEP). Predicting adverse obstetric outcome after early pregnancy events and complications: a review. Hum Reprod Update. 2009; 15 (4): 409-421.

15. Rasmussen S, Irgens LM. Occurrence of placental abruption in relatives. BJOG. 2009; 116: 693–699.

16. Lumley J, Chamberlain C, Dowswell T, Oliver S, Oakley L, Watson L. Interventions for promoting smoking cessation during pregnancy. Cochrane Database Syst Rev. 2009; (3).

17. Healy DL, Breheny S, Halliday J, Jaques A, Rushford D, Garrett C, Talbot JM, Baker HW. Prevalence and risk factors for obstetric haemorrhage in 6730 singleton births after assisted reproductive technology in Victoria Australia. Hum Reprod. 2010; 25(1): 265-274.

18. Pinto SM, Dodd S, Walkinshaw SA, Siney C, Kakkar P, Mousa HA. Substance abuse during pregnancy: effect on pregnancy outcomes. Eur J Obstet Gynecol Reprod Biol. 2010; 150 (2): 137-141.

19. Rodger MA, Betancourt MT, Clark P, Lindqvist PG, Dizon-Townson D, Said J. The association of factor V Leiden and prothrombin gene mutation and placental-mediated pregnancy complications: a systematic review and meta-analysis of prospective cohort studies. PLoS Med. 2010 Jun 15; 7 (6).

20. Ananth CV, Nath CA, Philipp C. The normal anticoagulant system and risk of placental abruption: protein C, protein S and resistance to activated protein C. J Matern Fetal Neonatal Med. 2010; 23(12): 1377–1383.

21. Deutsch AB, Lynch O, Alio AP, Salihu HM, Spellacy WN. Increased risk of placental abruption in underweight women. Am J Perinatol. 2010; 27(3): 235-240.

22. Tikkanen M. Etiology, clinical manifestations, and prediction of placental abruption. Acta Obstet Gynecol Scand. 2010; 89 (6): 732-740.

23. Lykke JA, Dideriksen KL, Lidegaard O, Langhoff-Roos J. First trimester vaginal bleeding and complications later in pregnancy. Obstet Gynecol. 2010; 115 (5): 935-944.

24. Pariente G, Wiznitzer A, Sergienko R, Mazor M, Holcberg G, Sheiner E. Placental abruption: critical analysis of risk factors and perinatal outcomes. J Matern Fetal Neonatal Med. 2011; 24 (5): 698-702.

25. Antepartum Haemorrhage. Green-top guideline No 63, 1st edition. November 2011, pp. 23-40.

26. Cantwell R, Clutton-Brock T, Cooper G, Dawson A, Drife J, Garrod D, et al. Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer, 2006–2008. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the UK. BJOG. 2011; 118: 1–203.

27. Davenport R, Curry N, Manson J, De'Ath H, Coates A, Rourke C. Hemostatic effects of fresh frozen plasma may be maximal at red cell ratios of 1: 2. J Trauma. 2011; 70 (1): 90-95.

28. Peitsidis P, Kadir RA. Antifibrinolytic therapy with tranexamic acid in pregnancy and postpartum. Exp Opin Pharmacother. 2011; 12 (4): 503-516.

29. Unal O, Kars B, Buyukbayrak EE, Karsidag AY, Turan C. The effectiveness of bilateral hypogastric artery ligation for obstetric hemorrhage in three different underlying conditions and its impact on future fertility. J Matern Fetal Neonatal Med. 2011; 24 (10): 1273-1276.

30. The CRASH-2 collaborators. The importance of early treatment with tranexamic acid in bleeding trauma patients: an exploratory analysis of the CRASH-2 randomised controlled trial. Lancet. 2011; 377 (9771): 1096-1101.