Anaesthetic Management of a Patient Presented As Acute on Chronic Ruptured Ectopic Pregnancy Posted for Emergency Laparotomy

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Abstract

Ruptured ectopic pregnancy is a form of obstetric hemorrhage which is the world leading cause of maternal mortality. A 22 year female admitted with chief complaint of abdominal pain and 2 months of amenorrhea and diagnosed as acute on chronic ruptured ectopic pregnancy. Emergency laparotomy was planned. Proper pre-anaesthetic check-up was done. There were no other comorbidities; no significant past and family history were present. Intra-operatively, fluid and PCV (patient's blood group was B-ve) replacement was done according to loss. Salphingoophorectomy was done and till then patient was vitally stable but just before closure, sudden hypotension, bradycardia, hemolysis were reported. After suspected blood transfusion reaction, PCV transfusion was stopped; iv line flushed with NS, Inj. Avil, Inj. Dexona and Inj. Hydrocort, Inj. Trenexa were given. Intra operative blood sample was collected and urgent ABGA, CBC, LFT, RFT, S. LDH were sent and patient was kept in OT for 1 hour after normal vitals and then shifted to ICU intubated. Monitoring core temperature, prompt use of measures to avoid hypothermia, using blood warmers, watch for hypocalcaemia, acidosis, and hyperkalemia go a long way in unmasking blood transfusion reactions. During operation, diagnosis becomes still more difficult and uncertain, because even when present, hypotension and oozing are easily attributed to events incident to anesthesia, operation or both. Thus hemolytic transfusion reactions occurring during operation are difficult to recognize early.

Keywords : Anaesthesia, Blood-transfusion reaction, Ectopic pregnancy

Introduction:

Ruptured ectopic pregnancy is a form of obstetric hemorrhage which is the world leading cause of maternal mortality. The principles in the anesthetic management of a patient with REP to ensure the best outcome are early recognition, prompt resuscitation and treatment of underlying cause.[1] Blood transfusion remains a lifesaving therapy neededpreoperatively in patients with ruptured ectopic pregnancy and severe blood loss. [2] Guidelines for perioperative transfusion and adjuvant treatment proposed by the latest version of the American AABB transfusion guidelines of 2012 recommended a threshold for erythrocyte infusion of 7.0 gm/dl Hb in patients with stable disease.[3] Blood transfusion reaction refers to undesirable, unintended, adverse response to the administration of blood, blood components, about 0.5-3% of all transfusion result in transfusion reaction. For emphasis, when any unexpected or untoward symptoms of sign occur during or shortly after transfusion of blood component, a transfusion reaction must be considered as the precipitating event until confirmed otherwise.

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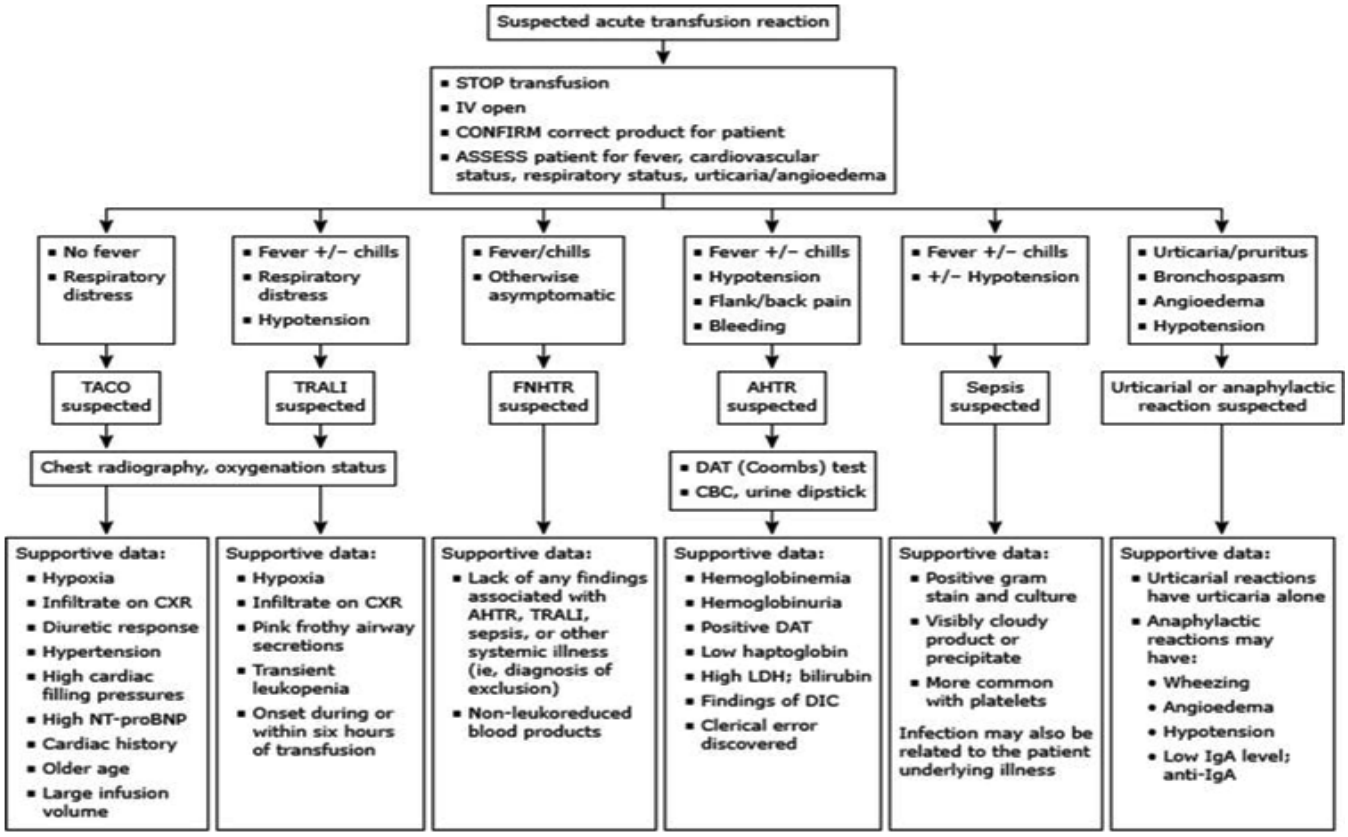
Case report:

A 22 year female admitted with chief complaint of abdominal pain and 2 months of amenorrhea and diagnosed as acute on chronic ruptured ectopic pregnancy. Proper pre-anaesthetic check-up was done. There were no other comorbidities; no significant past and family history were present. The vitals were as follow: HR-120/Min, BP: 100/60mmHg, Tachypnea present (RR>18/min).

The investigations revealed Hb - 5.3 gm%, Total Count- 9200, Platelet count -3,06,000, INR 1.2 S. Creat 0.86, normal electrolytes level , SGOT-10, and S. bilirubin 1.2, the blood group of patient was B-ve.

Emergency laparotomy was planned. To compensate low Hb 1PCV was given pre-operatively and O_2 by mask was given at 6 litre/hour; inj. Tramadol 100 mg was given with ondansetron and as patient's blood group was B- (rare blood group), so arrangement for blood was done from various blood banks, all the PCVs were tested for cross match. Patient was taken to OT and induction was done under GA, and with infra umbilical incision surgery was started intra-operatively PCV was running, fluid and PCV replacement was done according to loss. Five mops were fully wet with blood and blood clots which were suggestive of chronic bleed. All the bleed and blood clots evacuated, and salphingoophorectomy was done and till then patient was vitally stable, surgeons were checking for bleeders and were thinking to close, but suddenly BP fell from 124/82 mmHg to 60/30 mmHg, first we stopped surgeon from doing anything. Inj. mephentermine 12 mg given, sudden bradycardia occurred and HR dropped from 112 to 68 and then till 40. Inj. atropine 0.6 mg was given, hemolysis was started and urine became blood tinged. After examining all the aspects we suspected blood transfusion reaction and PCV transfusion was stopped; iv line flushed with NS, Inj. Avil, Inj. Dexona and Inj. Hydrocort, Inj. Trenexa were given. One unit colloid and around 1 litre of fluid were given to maintain BP. BP was 80/60 mmHg, so, inj Dopamin started, pulse and BP got back to normal. On auscultation, bilateral crepitations were present, continuous secretions from ET were coming, ET tube suctioning was done. Inj. Cal. Gluconate was given; inj. Lasix started from 10 mg, total dose of 80 mg was given while maintaining BP 100/70 mmHg with inj. Dopamine continued to flush kidneys to prevent AKI. Surgeons were allowed to proceed further and closure was done. While in between patient's intra operative

Figure 1: Pathophysiology of acute transfusion reactions [5]



blood sample was collected and urgent ABGA, CBC, LFT, RFT, S. LDH were sent and patient was kept in OT for 1 hour and observed then shifted to ICU intubated. Physician reference was done. Patient stabilised in ICU, no blood transfusions were given in 48 hours, continuous monitoring was done and routine blood investigation results were as mentioned below and weaning from ventilator done, extubated and then shifted to ward after full recovery.

Blood investigations: Intra op. Blood investigations; CBC - Hb 7.1, TC-14200, platelet-1,98,000, SGPT- 10, serum billirubin 1.8, creatinine 0.9, normal serum electrolytes, INR 1.2 and serum LDH(suggest haemolysis) 1637.

After 2 days: CBC: Hb 9.3, TC 15300, platelet 2,79,000, SGPT 12 , serum billirubin 1.9, creatinine 0.7, normal serum electrolytes, INR 1.2 and serum LDH(suggest hemolysis) 961.

Discussion:

An ectopic pregnancy is a potential medical emergency; they are dangerous for the mother, as internal haemorrhage is a life-threatening complication and, if not treated properly, can lead to death.[4] Patients with ectopic pregnancy have acute and active blood loss, and it is unclear under an emergency state, whether the body can tolerate transfusion due to pathological and physiological changes caused by massive blood loss. Potential adverse effects from blood transfusion involve contamination, acute immunologic hemolytic reaction, delayed extravascular hemolysis, febrile allergic transfusion reaction, erythrocytolysis, etc.

Among these reactions, acute immunologic hemolytic reaction is mainly developed by incompatible blood transfusion of ABO blood group or by unexpected antibody present in the blood. For the patient in this case, cross-matching tests conducted before transfusion and immediately after red-colored urine developed were both negative.

Hemolysis induced by unexpected antibody of low potency: In presence of low-potency antibody, it is possible that although antibody screening test is negative, hemolytic reaction can develop when antibody is activated by transfusion. Even if a test performed is still negative after exhibition of hemolytic reaction, such possibility cannot be completely excluded. It is because there are some cases in which the manifestation of unexpected antibodies such as 'kidd' can be identified late or clinical manifestation can be presented at even low potency when the antibody screening test is negative.[6,7] In this case, there can be other differential diagnosis like drug allergy – hemolysis would not be there. Anti D antibody- patient was primigravida, so it cannot occur DIC - in case of DIC patient would not recover spontaneously.

Clinically, we found that the health condition was generally good in patients with ectopic pregnancy, since they were of childbearing age. So, compensatory ability of the body was good. General anesthesia could mask the symptoms of a serious blood transfusion reaction; therefore patients could have increased peak airway pressure, sudden hypotension and changes in urine output and color in the context of a blood transfusion, during massive transfusion protocol. Therefore, monitoring core temperature, prompt use of measures to avoid hypothermia, using blood warmers, watch for hypocalcaemia, acidosis, and hyperkalemia go a long way in unmasking blood transfusion reactions. During operation, diagnosis becomes still more difficult and uncertain, because even when present, hypotension and oozing are easily attributed to events incident to anesthesia, operation or both. Thus hemolytic transfusion reactions occurring during operation are difficult to recognize early.

Conclusion:

It is important that the vital signs of a patient under general anesthesia and on blood transfusion be continually monitored in order to be able to detect blood transfusion reaction early and to be able to prevent.

References:

1. Chantigian RC, Chantigan PD. Problems of early pregnancy. In: Chestnut DH, Polley LS, Tsen LC, Wong CA. Chestnut's obstetric anesthesia principles and practice. 4th ed. Philadelphia, PA: Mosby Elsevier; 2009. 319-335.
2. A. Takeda, S. Manabe, T. Mitsui, and H. Nakamura, "Management of patients with ectopic pregnancy with massive hemoperitoneum by laparoscopic surgery with intraoperative autologous blood transfusion," Journal of Minimally Invasive Gynecology, vol. 13, no. 1, pp. 43–48, 2006. View at Publisher · View at Google Scholar · View at Scopus.
3. J. L. Carson, B. J. Grossman, and S. Kleinman, "Red blood cell transfusion: a clinical practice guideline from the AABB," Annals of Internal Medicine, vol. 157, no. 1, pp. 49–58, 2012. View at Publisher · View at Google Scholar Yanjuan Huang.
4. Yanjuan Huang, Yi Liang, He Ma, Mei Ling, Xuelian Ran, Jingxian Huang, Kejian Lu, Risheng Zhong, Fanke Huang, and Wenwu Bin: Restrictive Transfusion Strategy Does Not Affect Clinical Prognosis in Patients with Ectopic Pregnancy.
5. Blood Transfusion Reactions By John Ayodele Olaniyi: DOI: 10.5772/intechopen.85347.
6. Han KS, Park MH, Cho HI. Transfusion medicine.3rd ed. Seoul, Korea Medical Publishing Co. 2006, pp 228-31.
7. Cha YJ. Hematology. Seoul, Epublic. 2006, pp 574-7.