

# Anesthesia Management in a Case of Ectopic Pregnancy with Severe Anemia

Dr. Bhumika Kathiriya<sup>1</sup>, Dr. Hemesh Shewale<sup>2</sup>, Dr. Olvyna D'Souza<sup>3</sup>, Dr. Samrajini Ganguli<sup>4</sup>

<sup>1</sup>3rd Year Resident, Department of Anesthesiology, MGM Medical College, Navi Mumbai, India

<sup>2</sup>Lecturer Department of Anesthesiology, MGM Medical College, Navi Mumbai, India

<sup>3</sup>Head of the Department, Department of Anesthesiology, MGM Medical College, Navi Mumbai, India

<sup>4</sup>3rd Year Resident, Department of Anesthesiology, MGM Medical College, Navi Mumbai, India

**Abstract:** *Management of a patient with anemia is an important anesthetic challenge. We have reported a case of a 20 year old female who presented with a ruptured extra uterine pregnancy. Patient was having a severe anemia and not received any blood transfusion. The post operative period was uneventful and patient was discharged 8 days after surgery. Here we are discussing a management and outcome of this case which was performed under general anesthesia with massive blood transfusion. The duration of surgery was 1 hour and hemostasis was achieved in this period as well.*

**Keywords:** Ectopic pregnancy, severe anemia, hypovolemic shock, massive blood transfusion

## 1. Introduction

Anemia patients management is an important anesthetic challenge. We have reported a case of a 20 year old female primigravida who presented with 20 weeks of amenorrhea with severe abdominal pain and USG report suggestive of an extrauterine pregnancy. Patient was having a severe anemia and not received any blood transfusion and post operative period was uneventful. and patient was discharged 8 days after surgery. Here we are going to discuss the management and outcome of this case which was performed successfully under general anesthesia with massive blood transfusion.

## 2. Case Report

A 20 Year old female, American Society of Anesthesiologist physical status II (E), case of primigravida, not registered for antenatal check-up elsewhere, presented to the emergency department with history of amenorrhea of 22 weeks with severe abdominal pain. Patient had tachycardia with low blood pressure and severe generalised pallor was there. She denied history of alcohol and smoking, Urine pregnancy test and B-hCG test was positive. USG abdomen revealed normal ovaries, no gestational sac seen in the uterus with moderate to severe fluid collection seen in abdomen and pelvis. Patient was immediately taken up for emergency exploratory laprotomy for suspected ruptured ectopic pregnancy with hemoperitoneum.

On preanaesthetic evaluation, patient was in obvious distress. She was 158 inches tall and weighed 65 kg with pulse rate of 130/min, regular in rhythm, of low volume and blood pressure of 86/66 mmHg taken on right upper arm in supine position with severe pallor. on airway examination she had adequate mouth opening, no loose teeth, caps or crowns and mallampatti criteria

II. Pre-operative investigation revealed hemoglobin of 2.7 gm/dL, total blood count 25300 cells/cumm, platelet count

2.96 lakhs/cumm and prothombin time and international normalised ratio were normal. We have ordered 4 units of packed cells and 4 units of fresh frozen plasma.

General anesthesia was planned for the exploratory laprotomy as the patient was in a state of shock. Informed consent was taken after explaining the risk of bleeding, blood transfusion, general anesthesia related complications were explained to the patient. Two wide bore 18 G intravenous lines taken. Patient taken in operation room and standard ASA monitors applied. Invasive monitors like CVP line & arterial line were secured. The patient was pre-medicated with Inj Ranitidine 50mg, Inj Metaclopramide 10mg, Inj Glycopyrolate 0.2 mg and Inj Fentanyl 50 microgram. Rapid Sequence intubation was done with Inj Ketamine 60 mg and Inj Succinylcholine 100 mg with cuffed endotracheal tube 7.5 F and fixed on mark 20 cm after confirmation of bilateral air entry. Anesthesia was maintained with Isoflurane and intermittent boluses of fentanyl. Atracurium was used for neuromuscular blockade.

Intraoperatively patient had a blood loss of 2500 ml and hence to maintain hemodynamic stability, patient was managed with vasopressors like Inj Ephedrine and colloids, Patient received 4 units of packed cell volume and 4 units of fresh frozen plasma. Hypothermia was prevented using intravenous fluid warmer and active convective warming of the patient. Blood gas analysis revealed metabolic acidosis with pH value of 7.2, 160 ml (12gm) of sodium bicarbonate was infused and hypocalcemia was also corrected.

Total duration of surgery was 60 minutes which was uneventful. on extubation patient was hemodynamically stable and was shifted to ICU for further monitoring and she was discharged 8 days after surgery.

### 3. Discussion

Extrauterine pregnancy is a type of a pregnancy where the placenta is implanted in the peritoneal cavity exclusive of tubal, ovarian or intraligamentary implantation. The most frequent symptom encountered in an advanced extra uterine pregnancy is abdominal pain and the commonest physical findings are abdominal tenderness and an abnormal fetal lie. Diagnosis using an ultrasound with clinical correlation has 50% estimated success rate. An MRI scan is helpful in diagnosis, but is of limited use in an emergency. Anemia is qualitative and quantitative deficiency of Hb concentration or red blood cells in circulation resulting in reduced oxygen carrying capacity of blood to organs and tissues. Compensatory mechanism in form of increase in cardiac output, partial pressure of O<sub>2</sub>, 2-3

DPG levels, right shift in ODC, decrease in blood viscosity and release of erythropoietin get activated to variable degrees to maintain tissue oxygenation and offset the decrease in arterial O<sub>2</sub> content. Those with acute ongoing blood losses may get decompensated, leading to serious consequences like right heart failure, angina and tissue hypoxemia. The main anesthetic concentrations are to minimize factor interfering with O<sub>2</sub> delivery prevent any increase in O<sub>2</sub> consumption and to optimize partial pressure of O<sub>2</sub> in arterial blood. Hypoxia, hyperventilation, hypothermia, acidosis and the conditions that shift to ODC to left should be avoided.

### 4. Conclusion

The anesthetic implication of anemia in pregnancy are based on the understanding of normal compensatory mechanisms to optimize tissue oxygenation.

The main aim is to maintain an optimum balance between the compensatory mechanism and adequate tissue oxygenation in this parturients.

Monitoring should aim at assessing the adequacy of perfusion and oxygenation and the magnitude of ongoing blood losses.

Deleterious effects of chronic tissue hypoxemia along with threat of major blood losses in the pre-operative period need to be anticipated and treated adequately.



### References

- [1] Kalaivani K. Prevalence & consequences of anaemia in pregnancy. *Indian J Med Re.* 2009;130:627-33.
- [2] Demaeyer E, Adiels-Tegman M. Prevalence of anaemia in the World. *World Health Stat Q.* 1998;38:302-16.
- [3] Ezzati M, Lopez AD, Dogers A, Vander HS, Murray C. Selected Major risk factors and global and regional burden of disease.
- [4] Basu SM. Anaemia and pregnancy. In: Gupta S, editor. *Obstetric Anaesthesia.* 1st ed. Delhi: Arya Publications; 2004. pp. 433-56.
- [5] Idowu OA, Mafiana CF, Sotiloye D. Anaemia in pregnancy: A survey of pregnant women in Abeokuta, Nigeria. *Afr Health Sci.* 2005;5:295-9.
- [6] Gaiser R. Physiologic Changes of Pregnancy. In: Chestnut DH, Polley LS, Tsen LC, Wong CA, editors. *Chestnut's Obstetric Anesthesia. Principles and Practice.* 4th ed. USA : Mobsy Elsevier;2009. pp. 21-3
- [7] Brinbach DJ, Browne IM. Anesthesia for Obstetrics. In: Miller RD, Eriksson LI, Fleisher LA, Wiener-Kronish JP, Young WL, editors. *Miller's Anesthesia.* 7th ed. USA: Churchill Livingstone Elsevier; 2010. pp. 2204.
- [8] Pritchard JA. Changes in the blood volume during pregnancy and delivery. *Anesthesiology.* 1965;26:393-9.
- [9] Conklin KA. Maternal physiological adaptations during gestation, labor and the puerperium. *Semin Anesth.* 1991;10:221-34.
- [10] Rutter TW, Tremper KK. The Physiology of oxygen transport and red cell transfusion. In: Thomas EJ, Healy, Knight PR, editors. *Wylie and Churchill- Davidson's Anesthesia.* 7th ed. London: Arnold; 2003. pp. 167-83.
- [11] Physiology of Perfusion. <http://www.emcit.org/1-resus/physioperfusion.htm> [last accessed on 2010 Aug 7]
- [12] Hamasaki N, Asakura T, Minakami S. Effect of oxygen tension of glycolysis in human erythrocytes. *J. Biochem (Tokyo)* 1970; 68:157-61.
- [13] Weiskopf RB, Feiner J, Hopf H, Lieberman J, Finlay HE, Quah C, et al. Fresh blood and aged stored blood are equally efficacious in immediately reversing anemia-induced brain oxygenation deficits in humans. *Anesthesiology.* 2006; 104:911-20.
- [14] Christine S, Rinder. Hematologic disorders. In: Paul AK (adapting editor), Hines RL, Marschall KE, editors. *Stoelting's Anesthesia and Co-existing diseases.* 5th ed. India : Elsevier: 2010. pp. 448-56.