
Anesthetic issues in pregnancy with Ebstein's anomaly, hypothyroidism, and sepsis

Sir,

There is a known association between hypothyroidism and adverse fetal outcomes whereas sepsis is associated with increased fetal complications. Ebstein's anomaly is a congenital heart disease where proximal part of the right ventricle is "arterialized," becoming thin walled and poorly contractile, along with an enlarged right atrium^[1] which increases risk of fetal loss, prematurity, and low birth weight.

A 25-year-old P0G1 female weighing 51 kg was admitted with bleeding per vaginum of 1 day duration after 4½ month of amenorrhea. She was a known case of Ebstein's anomaly [Figure 1] along with hypothyroidism. On examination, she had dyspnea with minimal activity, mild hemoptysis, pale with moderate facial swelling, restless, and palpitation for one week and with irregular pulse rate of 92 bpm, respiratory rate 36/min, blood pressure (BP) 80/60 mm Hg, and arterial oxygen saturation (SpO₂) was 90% on room air. Jugular venous pressure was raised

and pansystolic murmur on tricuspid area was heard on auscultation, respiratory system was unremarkable, liver and spleen were not palpable, and no fetal heart sound was heard. There was no history suggestive of chest infection and heart failure. Investigation showed hemoglobin of 8.4 g/dl and total leukocyte counts was 21,100/cmm with a neutrophil count of 92%. Her serum sodium (Na) - 130 mmol/L, serum potassium (K) - 3.2 mmol/L, blood urea, and serum creatinine were normal, triiodothyronine - 68 ng/dl, thyroxine - 4.4 µg/dl, thyroid-stimulating hormone - 7.2 uU/ml. Serum arterial blood gas showed pH = 7.30, PCO₂ = 27.2 mm Hg, PO₂ = 72 mm Hg, HCO₃ = 18.2 mmol/L, lactate = 3.8 mmol/L, Base Excess = -4.2 mmol/L, and SpO₂ = 90% with FiO₂ at 0.3 which indicates metabolic acidosis.

The patient was planned for emergency hysterotomy under general anesthesia. After premedication, rapid sequence induction with cricoid pressure was done with injection

fantanyl 50 mg and injection thiopentone 150 mg given in slow incremental doses along with injection rocuronium was used for intubation and as a relaxant throughout the surgery. Anesthesia was maintained with oxygen, nitrous oxide, 0.4%–0.6% halothane, and intermittent positive pressure ventilation through Bain's circuit. Injection paracetamol 1 g given intraoperatively. Monitoring in the form of electrocardiography (ECG), invasive BP, SpO₂ and end-tidal carbon dioxide, and central venous pressure were employed. Infusion of nor-adrenaline 0.08 µg/kg/min was used for intraoperative hypotension. ECG was continuously monitored because these patients are prone to cardiac arrhythmias hence light plane of anesthesia or a fluid or acid-base disturbance need to be avoided.^[2] Synthetic oxytocin was given by slow infusion to avoid vasodilatation, and ergometrine was avoided because of its adverse effect on pulmonary vasculature.^[3] The patient was extubated after adequate reversal with minimal vasopressor support. The operation was completed in 40 min with no untoward incidence. Postoperatively, infusion noradrenaline was stopped after tapering, one unit of blood transfusion was given and she was transferred to the ward on postoperative day 3 with continuation of thyroxine and other medications.

We chose general anesthesia over spinal or epidural because she had hypotension which further decreases BP, metabolic acidosis with septal defect which suggesting association with the right to left shunt. Hence, there was risk of exacerbation of this shunt in the event of decreased systemic vascular resistance and hypotension due to epidural^[3] or spinal anesthesia. Reduced peripheral resistance associated with epidural or spinal anesthesia could have compromised blood supply to the peripheral areas. Basic principles of management of Ebstein's anomaly

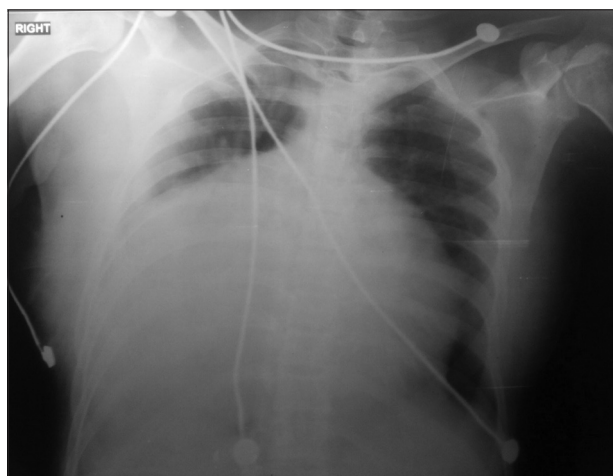


Figure 1: Chest X-ray posteroanterior view showing enlarged right atrium with cardiomegaly

are to maintain preload and afterload, maintain sinus rhythm, to prevent increased right to left shunting and avoidance of tachycardia.^[4] Chatterjee *et al.*^[5] reported a case where they used epidural anesthesia, in our case we used general anesthesia because of decrease in sympathetic vascular resistance may complicate right to left shunt. General anesthesia is preferred in patients with severe form of disease. The advantage of general anesthesia is that hypotension is usually avoided and fluid balance is easier to control. In conclusion, patients with Ebstein's anomaly, hypothyroidism, and septic shock present with unique challenges. Understanding of pathophysiology of these conditions and its effect on pregnancy along with a multidisciplinary approach is the key to successful outcome in these patients.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Misa VS, Pan PH. Evidence-based case report for analgesic and anesthetic management of a parturient with Ebstein's anomaly and Wolff-Parkinson-White syndrome. *Int J Obstet Anesth* 2007;16:77-81.
2. Macfarlane AJ, Moise S, Smith D. Caesarean section using total intravenous anaesthesia in a patient with Ebstein's anomaly complicated by supraventricular tachycardia. *Int J Obstet Anesth* 2007;16:155-9.
3. Groves ER, Groves JB. Epidural analgesia for labour in a patient with

- Ebstein's anomaly. *Can J Anaesth* 1995;42:77-9.
4. Rathna D, Tejesh CA, Manjunath AC, Thomas MK. Anesthesia for incidental surgery in a patient with Ebstein's anomaly. *SAARC J Anesth* 2008;1:85-7.
 5. Chatterjee S, Sengupta I, Mandal R, Sarkar R, Chakraborty PS. Anaesthetic management of caesarean section in a patient with Ebstein's anomaly. *Indian J Anaesth* 2008;52:321-3.

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