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 ug/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
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fentanyl 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. Synthetic oxytocin was given by slow infusion to avoid vasodilatation, and ergometrine was avoided because of its adverse effect on pulmonary vasculature. 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 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 are to maintain preload and afterload, maintain sinus rhythm, to prevent increased right to left shunting and avoidance of tachycardia. Chatterjee et al. 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.

Acknowledgment

It is privilege indeed to express my greatest regard and sincere gratitude to Dr. Prakash kumar dubey (Professor, IGIMS, Patna) for his helpful attitude, readily available suggestion, profound interest and invaluable clinical tips, and encouragement at every steps. I am very much thankful to our operation theatre staff, my senior, and postgraduate students.

Financial support and sponsorship

Nil.

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
Ultrasound-guided lumbar transforaminal injection through interfacet approach

Sir,

Lumbar transforaminal injections are routinely implemented in the interventional management of spinal radicular pain. Ultrasound (US) guidance is not usually recommended for any interlaminar injections and should never be used solely for a transforaminal epidural injection due to the inability to visualize vasculature within the spinal canal during an injection or gauge the depth of the needle once advanced past the bone. With US guidance in an interlaminar or transforaminal epidural injection, there is no assurance that the injectate has not been placed intravascular or that a dural puncture has not occurred.

Here, we are going to report a new technique of lumbar transforaminal injection through interfacet approach. In operation theater, patients were placed in the prone position on procedure table. A pillow was placed under the abdomen to alleviate lumbar lordosis. A SonoSite TM M-Turbo machine and a linear 38 mm, 7–13 MHz US transducer were used for the procedure. After identification of the fifth lumbar spinous process, the desired spinal level for the injection was marked by cephalad counting of the spinous process starting from L5. A second scan was performed in the paramedian sagittal plane at the lower back with its orientation marker directed cranially. A slight tilt medially during the scan is assumed to insonate in a paramedian oblique sagittal plane. The probe is moved medially to laterally to visualize the horse head sign (lamina), camel hump (articular processes), and finally trident sign (transverse process). After infiltrating local anesthesia, a 90 mm needle was inserted approximately 45° into the skin and advanced through the out-plane approach, which enables real-time visualization of tip of the needle. The needle tip was advanced in between two articular facets until it hits the bony structure in between two articular facets. The needle was withdrawn by 2–3 mm and redirect anteriorly between two facet. If the patients complained of shooting pain or tingling in the leg during needle advancement, the needle was withdrawn slightly till the pain subsided. Once satisfactory position of the needle is achieved under US, fluoroscope (FL) image is taken to confirm the needle tip placement and contrast spread. Minor adjustments to position the needle tip were done if required at this stage. One milliliter of iohexol 300 mg/ml (contrast) was then injected under FL guidance. This is done to ensure that there is no intravascular or intrathecal spread [Figure 1].

FL guidance method is the gold standard for performing lumbar transforaminal epidural steroid injections, but it is not devoid of adverse effects such as exposure to radiation and need to wear heavy lead aprons. US-guided techniques are being evaluated recently, but methodological acceptability and reproducibility remain unknown. Hence, we have described this method after carefully reviewing the literature regarding the specific anatomy and performing this block successfully on many patients. This approach has the advantage of easy identification of lumbar structures when compared to transverse approach. Hence, it can be used as an adjunct to transverse scan. In short, US when used with...