

Anaesthetic Management in a Patient with Huge Lymphoma Neck Having Retrosternal Extension for Caesarean Section

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Abstract

Anatomical and physiological changes of pregnancy make the airway management risky, which has resulted in the increased use of regional anaesthesia for caesarean section. Pathological conditions causing airway compromise in these patients can increase the risk making the situation life threatening during the perioperative period. Though regional anaesthesia avoids airway manipulation, it can often result in emergency situations necessitating airway control which can be catastrophic in them. We present the successful management of a patient with compromised airway due to huge lymphoma in front of the neck having retrosternal extension for elective caesarean section under continuous epidural anaesthesia with good maternal and neonatal outcome.

Keywords: Anaesthesia; Lymphoma; Retrosternal; Caesarean Section.

Introduction

Neck swelling with retrosternal extension causing airway compromise in the obstetric patient is a challenge for the anaesthesiologist. General anaesthesia can provide control of the airway, but can be risky due to airway distortion produced by the tumor over the difficult airway of pregnancy.

Neuraxial blockade though preferred for caesarean section can be catastrophic in the event of emergency airway intervention due to unexpected complications.

We report the anaesthetic management of a parturient with huge lymphoma in front of the neck having retrosternal extension producing significant tracheal narrowing who underwent caesarean section under continuous epidural anaesthesia uneventfully.

Case Report

A 33-year-old second gravida at 34 weeks of gestation who had uneventful caesarean section eleven years back was admitted for delivery. She had a huge swelling in front of the neck causing difficulty in breathing, making her to sit most of the time. The swelling was noted in the early second trimester, which rapidly enlarged to the present size. Histopathological examination proved it to be anaplastic large cell lymphoma, for which chemotherapy was planned at the earliest after delivery, for which caesarean section was planned.

She was 146cm, 49kg, had anxious look and congested facies with respiratory rate of 22/min. Pulse rate was 104 beats/min and blood pressure, 124/84 mm Hg in sitting position. The huge multilobulated neck swelling was extending beyond the sternomastoids bilaterally [Figure 1] with a scar

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of recent biopsy over its lower part on the right side. There were dilated veins over the swelling and was not possible to get its lower margin due to retrosternal extension. Trachea and carotid arteries were not felt due to the swelling and it was dull to percussion over the manubrium sterni. Room air oxygen saturation was 96%, which dropped to 88% on lying supine. Uterine size corresponded to the gestational age and fetal heart rate was normal.

Due to respiratory distress, she requested not to make her unconscious, and opted for regional anaesthesia as done for her previous caesarean delivery.

Her routine hemogram and thyroid function tests were within normal limits. Electrocardiogram showed sinus tachycardia and echocardiography was normal. Ultrasound examination showed huge cervical, supraclavicular and pretracheal lymph nodes bilaterally. There were nodular masses along the jugular chains and compression over the brachiocephalic and internal jugular veins encasing the carotid vessels bilaterally. Radiographs showed



Fig. 1: Huge multilobulated neck swelling with retrosternal extension

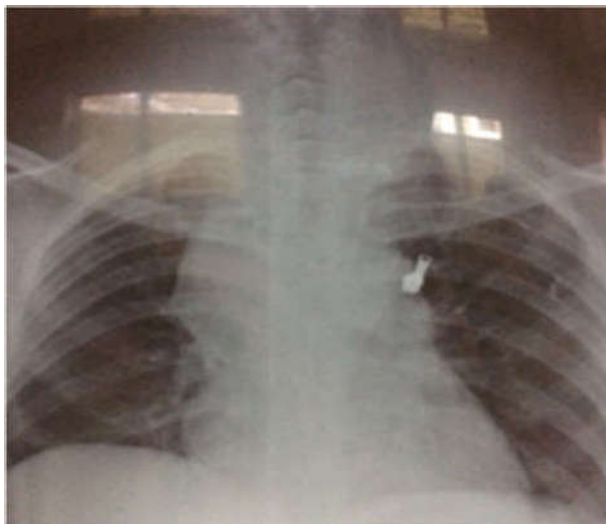


Fig. 2: Chest radiograph showing mediastinal tumor causing tracheal compression

the neck swelling extending down to the superior and middle mediastinum with severe tracheal compression at the thoracic level [Figure 2]. CT scan revealed multiple enlarged cervical, axillary and mediastinal lymph nodes causing compression and displacement of trachea with narrowest diameter of 9x3.7mm at the level of T3 vertebral body.

Informed consent was obtained in view of the possible airway problems and continuous epidural anaesthesia was planned as the patient opted regional technique. On the preoperative night, ranitidine was given orally and she was instructed nil by mouth for 6 hours before surgery.

On the day of surgery, 500ml ringer lactate was infused through 18 G cannula in the left forearm. Continuous supplemental oxygen was administered via facemask. Back up of difficult airway cart including pediatric size endotracheal tubes were kept ready. As the patient was dyspnoeic on lying down, she was positioned sitting. Under local infiltration with 3ml 2% lignocaine, epidural puncture was done at L2-3 interspace with 18G Touhy needle using loss of resistance technique and epidural cannula was passed 3 cm cephalad.

Epidural placement was confirmed by test dose of 3ml 2% lignocaine with 1:200,000 adrenaline, followed by 7 ml of the same drug over 10 minutes, maintaining her in the same position, which produced sensory blockade up to T4 level. She was then positioned semireclining at 45° head up with oxygen by face mask.

Lower segment caesarean section was done in this position delivering a male baby within five minutes of incision, and she smiled at her baby. The neonate weighed 2400 g and had APGAR scores 8 and 9 in the first and fifth minute respectively. 10 units of oxytocin was given through intravenous infusion after clamping the umbilical cord, which caused uterine contraction. Vital parameters (pulse, BP, SpO₂) were stable throughout the 45minute procedure with an approximate blood loss of 600 ml, which was replaced with ringer lactate.

Postoperatively she was shifted to intensive care unit (ICU), and nursed at 45° head up with oxygen by face mask. Epidural analgesia was initiated after 4 hours by 8 ml 0.125% bupivacaine with 50 µg fentanyl eighth hourly for 24 hours, after which the cannula was removed and was shifted to postoperative ward. She was symptomatically better in the postoperative period since the respiratory difficulty was partly relieved after evacuation of the uterus. On the 7th postoperative day she was discharged and referred for oncology treatment.

Discussion

Retrosternal swellings that can significantly compromise the airway include goiters, thymomas, lymphomas, germ cell tumors and vascular lesions. Lesions arising from the sternum, lungs and pleura can also involve this space. Lymphomas are common primary anterior mediastinal tumors seen in adults, second only to thymomas. While Hodgkin's lymphoma has its peak occurrence in the female reproductive age group (1 in 1000-6000 pregnancies), non-Hodgkin's type occurs in all age groups [1].

Anaplastic large cell lymphoma is a non-Hodgkin's type which has a better prognosis with chemotherapy and/or radiation. Airway management in obstetric patient is often difficult due to the anatomical and physiological changes occurring during pregnancy, making the parturient vulnerable for early and rapid desaturation endangering both maternal and fetal lives [2].

This has resulted in wide spread use of neuraxial blockade in preference to general anaesthesia for caesarean section except in unavoidable situations. Other pathological conditions which compromise the airway make the situation worse causing failed intubation resulting in maternal and fetal morbidity and mortality [3].

Choice of anaesthesia for caesarean section in a patient with compromised airway poses additional risk in the setting of an already difficult airway caused by pregnancy. This patient has noted the neck swelling during her second trimester, which had rapidly increased in size with retrosternal extension causing dyspnea, orthopnea and superior vena cava (SVC) syndrome. This can be due to the tumor compressing the mediastinal structures like tracheobronchial tree, pulmonary arteries and SVC. Physiological dyspnea of pregnancy begins in the first trimester which plateaus or improves in the last trimester, whereas pathological dyspnea due to mediastinal compression is progressive and becomes worse as pregnancy advances.

Due to severe tracheal compression at the thoracic level, the patient was adopting sitting position most of the time for the maintenance of patent airway. She could not cooperate for awake blind nasal or fiber optic tracheal intubation.

Assuming supine position and induction of general anaesthesia can result in airway obstruction due to loss of muscle tone and airway compression due to the intrathoracic tumor. Decrease in functional residual capacity (FRC) and loss of muscle tone due to neuromuscular blockade can make the situation

still worse. Hence there was possibility of cannot intubate-cannot ventilate (CICV) scenario on induction of general anaesthesia. Emergency cricothyrotomy or tracheostomy were not feasible due to the anatomical distortion produced by the neck tumor.

Anterior mediastinal tumors can cause severe airway and vascular compression, which can be exacerbated by general anaesthesia [4].

As general anaesthesia is risky in such situations, regional anaesthetic techniques were chosen in several cases in the literature. Yatish B et al used combined spinal epidural anaesthesia (CSE) for cesarean delivery in a patient with large anterior mediastinal mass tumor presenting as intrathoracic airway compression [5].

Crosby E conducted caesarean section under subarachnoid block in a parturient with large intrathoracic tumor filling the right hemithorax [6].

Though regional techniques are preferred over general anaesthesia in such situations, reports of sole epidural anaesthesia as done in this case is not available in the literature.

Since our patient could not lie supine due to orthopnea, she was positioned in the sitting "rescue" position. Continuous epidural anaesthesia was chosen due to its flexibility and slow achievement of the block, with minimal drug as against bolus drug administration in subarachnoid block. There was also less chance of higher block as the anaesthesia was gradually established with the patient sitting. Combined spinal epidural (CSE) was not preferred to avoid multiple punctures and unexpected high block due to subarachnoid puncture. To prevent undesired high level of neuraxial blockade, she was positioned semi-reclined with 45° head up for the surgery. The patient was comfortable throughout the procedure with stable vital parameters. She was nursed in the postoperative ICU in this position and analgesia was provided through the epidural cannula.

We could successfully use continuous epidural anaesthesia for caesarean section in this patient with airway compromise, where general anaesthesia would have been catastrophic due to loss of airway during the perioperative period.

Conclusion

Neuraxial anaesthesia, especially continuous epidural anaesthesia if properly conducted can be safely used for caesarean section in patients with compromised airway as it avoids the airway risk of

general anaesthesia. However, meticulous selection of patients and expertise in anaesthetic management are crucial for a good outcome in such cases.

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