

## One Way for Air, While Great Vessels in Despair!

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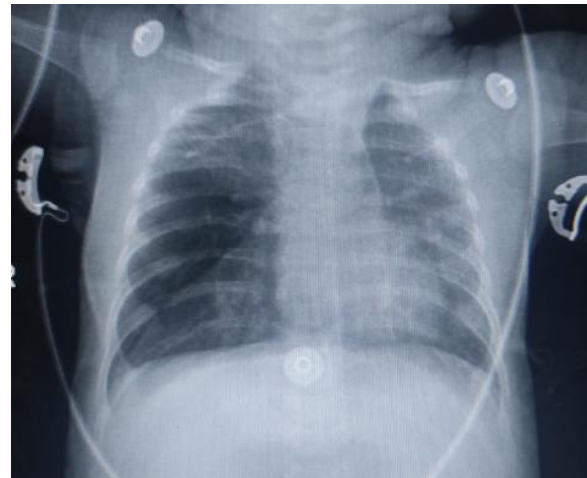
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**C**ongenital lobar emphysema (CLE) is an idiopathic postnatal over distension of an otherwise normal lung lobe leading to compression, deviation or distortion of airways and great veins. Lobectomy, at the earliest, is lifesaving in severe symptomatic cases [1]. With this letter, we emphasize management of a rare case of extensive right middle lobar emphysema with distorted airway in a 2 month old infant and unique challenges it possess to anesthesiologists.

A 2-month-old infant, delivered by normal vaginal delivery at term, presented with symptoms of repeated upper respiratory tract infection and failure to thrive at 1 month. Chest Xray and CECT thorax revealed emphysematous right middle (Figure 1) displacing trachea towards left and compressing major vessels. She was admitted in pediatric intensive care unit where she had an episode of hypoxia induced seizure. Therefore, anti-epileptics were started. On examination, her saturation was 94% with oxygen support at 2L/min via nasal prong, tachypneic (Respiratory rate (RR) of 62/min) with intercostal retractions and decreased air entry on the right side. Right thoracotomy with middle lobectomy was planned.



**Figure 1- Chest Xray showing right middle lobe emphysematous changes**

In the operating room, standard ASA monitors were attached. She was induced with 3% sevoflurane in 100% oxygen, intravenous (IV) fentanyl, IV propofol and IV atracurium according to her weight. Following 4 minutes of bag and mask ventilation, she was intubated with 3.5mm uncuffed endotracheal tube fixed at 11 cm. Right internal jugular central venous access was secured with ultrasound guidance. She was positioned in left lateral position. She was manually ventilated with low tidal volume, high RR and higher fractional inspired oxygen concentration (FiO<sub>2</sub>) of 70% till thoracotomy was done.

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Later on, she was taken on intermittent positive pressure ventilation (IPPV) during lobectomy. During dissection, there were 8 episodes of desaturation and bradycardia, for which surgeons were requested to stop and manual bag ventilation with 100%FIO<sub>2</sub> was done until saturation reached 100%. After lobectomy, the right lower lobe was expanded using a gentle manual recruitment maneuver. Intercostal nerve block under direct vision was given by surgeon for postoperative pain management. Surgery lasted for 3 hours. The patient was electively ventilated postoperatively and extubated on the same day.

CLE is a rare respiratory disorder with a 'Ball-valve mechanism' in which air enters the lungs but cannot escape, causing over inflation of the lobes and 'Tension Emphysema' [2]. This is more pronounced during positive pressure ventilation aggravating collapse of adjacent lobes and great veins leading to hemodynamic collapse. Gentle manual ventilation to keep minimum

pressure during thoracotomy incision is recommended. One lung ventilation is not only difficult to achieve in an infant but also poorly tolerated due to increased chest wall compliance and ventilation-perfusion mismatch. Adequate pain management and elective extubation are ideal. A thorough preoperative evaluation, lung protective ventilation, adequate analgesia and closed loop communication with the surgeon define the role of anesthesiologist in management of such case.

### References

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