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Anesthetic Management Of A Pediatric Patient With Congenital Lobar Emphysema Undergoing Endobronchial Valve Insertion: A Case Report

Rationale:Congenital pulmonary emphysema (CPE) is a rare respiratory condition characterized by overinflation of one or more lobes of the lung. Management often involves surgical interventions such as endobronchial valve insertion. Anesthetic management for such procedures in pediatric patients remains challenging due to their unique physiological and anatomical features, along with the need for maintaining adequate ventilation, hemodynamic stability, and ideal surgical conditions.
Methods: 13 year old patient with CPE presented with progressive dyspnea of a few months. Chest CT demonstrated right lower lobe emphysema and flexible bronchoscopy revealed narrowing of the right lower lobe. The patient was then scheduled for endobronchial valve insertion to facilitate continuous airflow through the right lung. We present a case report detailing the anesthetic management employed and discuss the perioperative challenges in managing these cases.
Results:The patient underwent successful endobronchial valve insertion under general anesthesia with a laryngeal mask airway utilizing a balanced total intravenous approach with propofol and remifentanil. Intraoperative monitoring included pulse oximetry, capnography, blood pressure, electrocardiogram, and temperature. Bronchoscopy revealed extrinsic compression of the right upper and medial lobe. An endobronchial valve was inserted in the medial segment of the right lower lobe. The procedures goal was to create RLL atelectasis to facilitate airflow through the RML and RUL. The procedure was completed without complications. Chest CT post-op showed persistent emphysema within the RLL with mild improvement in atelectasis in the adjacent lobes and the patient was discharged on POD1.
Discussion:This case highlights the importance of individualized anesthetic management in pediatric patients. Utilizing a TIVA technique coupled with comprehensive intraoperative monitoring, facilitated optimal surgical conditions and peri-op outcomes.