

Plastic Bronchitis

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Plastic bronchitis is a rare condition characterized by formation of airway casts. The accompanying image demonstrates arborizing bronchial casts that were extracted from the airway of a 12-yr-old patient with a history of surgically corrected transposition of great arteries. Plastic bronchitis in children, especially those with a Fontan circulation, has been attributed to presence of central venous hypertension and lymphatic abnormalities that lead to endobronchial egress of lymph precipitating airway cast formation. This unique complication occurs months to years after surgical correction of cyanotic heart disease. Children present with dyspnea, coughing, wheezing, tachypnea, and cyanosis.¹⁻³

Anesthetic management for bronchoscopic removal of casts can be challenging because children are often apprehensive, uncooperative, and in respiratory distress from critical airway compromise. Because positive pressure ventilation can potentially displace casts distally, inhalational mask induction and preservation of spontaneous breathing is prudent in patients with non-tenuous cardiopulmonary status. Anticholinergic administration at induction helps minimize airway secretions. Postinduction topicalization of glottic structures with lidocaine helps prevent perioperative laryngospasm. Maintenance with intravenous infusion of propofol with or without remifentanyl allows tolerance of rigid bronchoscopy. Using a ventilating bronchoscope facilitates spontaneous and/or assisted ventilation during the procedure. Severe hypoxemia and hypercarbia from extensive tracheobronchial blockage may necessitate emergent intubation and establishment of invasive arterial monitoring.

Bradycardias related to severe hypoxemia, profound acidosis from inability to ventilate and oxygenate, pneumothorax from barotrauma during mechanical ventilation, and air trapping-induced decreased venous return can precipitate cardiovascular collapse. Extracorporeal membrane oxygenation support enables cast removal in such circumstances.¹⁻³

Competing Interests

The authors declare no competing interests.

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