Letters to Editor

Late onset Pneumothorax following bronchoscopic foreign body removal

Sir,

Foreign body impaction in the airway is a common cause of morbidity in children. Rigid bronchoscopy is considered the gold standard for tracheobronchial foreign body removal. Major life-threatening complications such as pneumothorax, pneumomediastinum, airway obstruction, cardiopulmonary arrest, arrhythmias and pulmonary edema may occur. A 15-month-old male child weighing 9 kg was posted for bronchoscopic foreign body removal. The child had 2 days history of increased respiratory distress. Preoperative examination revealed reduced air entry on the right side of the chest and oxygen saturation 99% on room air. Chest X-ray revealed a hyper-inflated right lung due to air trapping [Figure 1]. Multislice computed tomography scan of chest...
revealed 8 mm × 5 mm sized soft tissue in right main bronchus approximately 1-1.2 cm from the carina obliterating the bronchial lumen resulting in air trapping in the entire right lung. After premedication with IV midazolam, anesthesia was induced with propofol and muscle relaxation was obtained with succinylcholine. Rigid bronchoscopy was performed by a senior bronchoscopist and child was ventilated through the ventilating port of the bronchoscope using Jackson Rees circuit. Anesthesia was maintained with intermittent doses of IV propofol. Foreign body consisting of bits of betel nut approximately 1 cm × 1 cm was removed piecemeal. Child was then intubated, and positive pressure ventilation was given. Suctioning and positional drainage of secretions were done in the right side up and head low position. Postextubation there was improved air entry on the right side of the chest.

Two hours postprocedure, the patient developed breathlessness and tachypnea. A chest X-ray was done which revealed a pneumothorax of approximately 20% [Figure 2]. Immediately a right sided intercostal drain (ICD) was inserted. Follow-up Chest X-ray revealed re-expansion of the right lung.

The pathophysiology of pneumothorax can be varied. Air trapping caused by the poststenotic bronchial obstruction increases the transpulmonary pressure gradient. Positive pressure ventilation may further increase the pressure gradient causing alveolar rupture. Air enters the interstitial tissues of the lung and pleural space resulting in pneumothorax. A pneumothorax can occur during a transbronchial lung biopsy. A one-way valve mechanism develops because of transbronchial instrumentation leading to a rent allowing the air to enter the pleural cavity during positive pressure ventilation but not allowing it to leave during the expiratory phase.

Pneumothorax usually manifests itself during surgery or in the immediate postbronchoscopy period by a fall in oxygen saturation, a rapid increase in airway pressure, hypotension, and tachycardia. Symptoms and/or signs of a pneumothorax may be delayed but is uncommon.

Hence to conclude, pneumothorax postbronchoscopy can manifest as a delayed complication. Early diagnosis and prompt management are essential. Patients should be kept under continued observation anticipating this possibility. The British Thoracic society recommends that a chest X-ray should be obtained if a patient is symptomatic; if there is a clinical suspicion of possible pneumothorax after bronchoscopy and at least 1 h after transbronchial biopsy to exclude a pneumothorax. Drainage of pneumothorax with ICD placement is life-saving and should be done immediately.

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