

Unilateral bronchospasm during one-lung ventilation

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To the Editor:

We experienced an unreported case of the absence of end-tidal carbon dioxide concentration (EtCO₂) waveforms during one-lung ventilation: unilateral bronchospasm [1]. A 76-year-old man with left lung cancer, mild emphysema, and possible asthma cough was scheduled for video-assisted thoracic surgery. After induction of general anesthesia, a 37 Fr. left-sided double-lumen tube (DLT) was inserted, and one-lung ventilation was initiated. Several minutes later, the EtCO₂ waveforms suddenly became completely flat. Manual ventilation of the right dependent lung was attempted but was impossible. Immediate fiberoptic bronchoscopy did not detect malposition of the DLT or an obstruction of the patient's airway. The anesthesia machine was confirmed to be functioning normally, and there was no obstruction of a gas sampling tube. Auscultation of the right chest showed no gas entry. A chest X-ray

taken several minutes later with the patient in the supine position ruled out pneumothorax but showed decreased air entry to the right lung, indicating unilateral bronchospasm. With infusion of aminophylline 250 mg, it became possible to ventilate the right lung, and the EtCO₂ waveforms reappeared. Auscultation of the chest showed weak wheezing. The causes of impossible ventilation during one-lung ventilation are various (see Table 1 in supplementary material). When ventilation becomes impossible during one-lung ventilation in the absence of the EtCO₂, we should consider that unilateral bronchospasm is one possible cause.

Reference

1. Asai T. Monitoring during difficult airway management. *J Anesth.* 2014;28:87–93.

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