



Correspondence

Treatment of ventilation failure after tracheal intubation due to asthma attack with high concentration sevoflurane



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To the Editor,

Asthma involves chronic inflammation of the airways, with reversible airflow obstruction and enhanced bronchial reactivity, and asthma attacks can occasionally occur during the perioperative period. Here, we report a case of severe asthma attack after tracheal intubation, leading to impossible ventilation, which was relieved by high concentration sevoflurane inhalation.

A 25-year-old male (height, 161 cm; weight, 67 kg) diagnosed with an anal abscess was scheduled to undergo emergent drainage. He had no history of asthma, but kept smoking until the day of surgery. As he did not take food from the previous night or drink from 6 h before admission to the operation room, we decided to perform rapid induction.

After induction of anesthesia with propofol and fentanyl, mask ventilation was performed. Rocuronium was administered as a muscle relaxant. There was no sign of ventilation disorder and capnography showed no disturbance. Laryngoscopy with the Pentax-AWS Airwayscope™ (Hoya, Japan) and tracheal intubation were performed uneventfully. Following tracheal intubation, manual ventilation could not be performed due to high resistance. We suspected esophageal intubation, but confirmed that the tracheal tube was in the trachea. We performed suctioning, tube depth change, and other measures, but his ventilation status did not change. We next suspected a severe asthma attack and administered 8% sevoflurane and gently performed manual ventilation. Ventilation gradually recovered and capnography showed a severe obstructive pattern. Auscultation also revealed a severe wheeze compatible with an asthma attack. Administration of sevoflurane, theophylline, and steroids improved the ventilation status and the operation was performed uneventfully. The patient was extubated in the operation room under continuous administration of theophylline.

Asthma attacks are both common and dangerous causes of hypoxia-induced cardiac arrest in the operation room and emergency settings [1, 2]. Although most cases respond favorably to standard treatment, there are rare cases in which therapy beyond traditional treatment is needed. In our case, a severe asthma attack after tracheal intubation led to impossible ventilation, which required a rapid response in order to avoid hypoxia-induced cardiac arrest. One treatment modality in such cases involves inhalational anesthesia using sevoflurane [3]. After ruling out

various potential causes such as tube kinking or displacement [4,5], we administered a high concentration of sevoflurane, which recovered sufficient ventilation. Given the lack of wheezing during the impossible ventilation phase, we moved forward with administering sevoflurane. Our findings suggest that sevoflurane administration may be appropriate in some cases of sudden impossible ventilation after tracheal intubation.

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None to report.

Details of Authors' contributions

N.K., I.N., W.N. performed critical management of the case, and wrote the manuscript; T.M.: prepared the manuscript preparation, critical comment and final approval.

Patient consent

Written consent was obtained from the patient for the publication of this report.

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