Management of a patient with Mounier-Kuhn syndrome undergoing repeated general anesthetics

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To the Editor,

Mounier-Kuhn syndrome (MKS) is characterized by tracheal and bronchial dilatation and tracheobronchomegaly. The clinical presentation varies widely from minimal respiratory discomfort, repetitive respiratory infections, mucus accumulation, and ineffective cough to severe respiratory failure.^{1–3} Airway management in these patients can be complicated by “air loss” during ventilation, resulting in hypoventilation and large airway collapse. There is also a high risk of aspiration because the cuff of the endotracheal tube (ETT) does not adhere to the tracheal mucosa and an airtight seal is not possible. We describe airway management in a MKS patient having repeated general anesthetics. The patient gave written consent for publication of this case.

A 74-yr-old male (height 1.68 m, weight 72 kg) was admitted to our university hospital with a bladder carcinoma for orthotopic neobladder reconstruction. His preoperative chest *x-ray* showed an increased tracheal diameter. The patient, a non-smoker, had never experienced respiratory symptoms, and his arterial blood gas was within the normal range. Fibrobronchoscopy confirmed an aneurysmal dilatation and multiple diverticula in the trachea and main bronchi. After reviewing the computed tomography multiplanar and volumetric reconstructions ([Figure](#)), we planned to place the ETT in a non-dilated section of the trachea (width 1.87–2.7 cm, length 3.67 cm). Preoperatively, we checked that the diameter of a size-9 ETT cuff was > 2.7 cm when inflated. The length of the

cuff was 4.5 cm, exceeding the length of the narrow section (3.5 cm) by approximately 1 cm; however, we considered that a tight seal could be obtained with partial contact of the cuff with the trachea.

Before induction of anesthesia, a set of different-sized ETTs, several supraglottic devices, and a fibroscope were prepared. Laryngoscopy was carried out using a video laryngoscope (GlideScope®, Verathon Inc., Bothell, WA, USA), and a size-9 ETT (Kendall, Tyco Healthcare UK) with a high-volume low-pressure cuff was inserted and inflated as soon as the cuff was visible below the vocal cords. Ventilation was then tested and the ETT was secured. The ETT cuff was inflated with the lowest volume of air necessary to close the pressure/volume loop. The cuff pressure, measured with a dedicated manometer, was always ≤ 23 cm H₂O, and no air loss was detected during the entire surgery. A size-5 ETT was inserted into the esophagus under video laryngoscopic vision, and the cuff was inflated to reduce the risk of aspiration. A stomach tube was then inserted through the ETT. At the end of the seven-hour surgery, the patient was transferred to the intensive care unit (ICU), and his trachea was extubated the following day after a negative chest *x-ray*. Respiratory complications were not detected, and no damage to the vocal cords or trachea was identified with postoperative bronchoscopy. In the following five months, the patient had to undergo four additional general anesthetics for surgical complications with the same anesthetic management. The patient never complained of respiratory symptoms and had no respiratory complications, including tracheal stenosis.

Contrary to what Messahel⁴ advocates, we decided to cuff the tube as Min *et al.*⁵ suggest in order to avoid air loss and reduce the risk of aspiration. We also had an alternate plan to use either a CobraPLATM (Engineered Medical Systems, Indianapolis, IN, USA) or an i-Gel (Intersurgical

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Figure Computed tomography multiplanar reconstruction and three-dimensional projection showing marked tracheal dilatation: the subglottic anteroposterior diameter varies from 1.87 cm (2) to 2.7 cm (3) with a craniocaudal extension of 3.67 cm (4); the maximal transverse diameter is 4.36 cm (1). The three-dimensional image gives a clear picture of the difference between the upper portion of the trachea and the lower aneurysmal part

Ltd, Wokingham, Berkshire, UK) supraglottic airway and to insert an ETT through the lumen. In this way, we would establish a supraglottic seal in order to deliver adequate tidal volumes.

We strongly suggest a thorough preoperative evaluation for patients with MKS in order to plan the best approach and to consider all available airway devices. For unexplained air loss detected during general anesthesia, the syndrome of MKS should be considered. Maneuvers to avoid aspiration should be undertaken, including postural changes and gastric emptying.

Competing interests None declared.

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