An unusual case of airway rescue in the prone position with the ProSeal laryngeal mask airway

To the Editor:

An obese 58-yr-old male was undergoing extensive lower back surgery in the prone position. His head was face down on a support ring and the tracheal tube was attached strongly with adhesive tape. Facemask ventilation in the supine position had been difficult and laryngoscope-guided tracheal intubation had been accomplished at the first attempt using a gum elastic bougie, as the patient had an unexpected high anterior larynx. Midway through the procedure ventilation became difficult due to a massive leak. A rapid inspection revealed that the tracheal tube had been displaced by approximately 5 cm. On the assumption that the distal portion of the tracheal tube might still be aligned with or within the glottic inlet, the cuff was deflated and a single attempt made to push the tracheal tube back into position, but this resulted in esophageal intubation. While rapid preparations were made to rotate the patient back into the supine position for airway rescue and with the SpO_2 still > 95%, the gum elastic bougie was inserted with its straight end first along the esophageally placed tracheal tube, the tracheal tube was removed and a ProSeal laryngeal mask airway (ProSeal LMA; The Laryngeal Mask Company, Henley-on-Thames, UK) railroaded along its drain tube into position in the pharynx. The airway tube was immediately attached to the anesthesia breathing system and ventilation commenced with tidal volumes > 1000 mL at peak airway pressures of 25 cm H_2O. The ProSeal LMA was then taped into position, the gum elastic bougie removed and a gastric tube inserted. The case was completed with the ProSeal LMA *in situ*. There were no other problems.

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Methylene blue in congenital methemoglobinemia: prophylactic or on demand?

To the Editor:

We read with interest the article "Prophylactic methylene blue in a patient with congenital methemoglobinemia".[1] However, we feel the patient's condition did not warrant prophylactic administration of methylene blue. Surgery of this patient was cancelled previously because of severe hypoxia due to respiratory depression following induction of anesthesia without preoxygenation. But oxygenation had improved following ventilation with 100% oxygen, before giving methylene blue.[2] On this occasion however, the patient was preoxygenated following which, PaO_2 increased from 81.3 to 543 mmHg and SaO_2 from 96.2 to 99.7%. Preoxygenation itself provided an adequate margin of safety against hypoxia. Homozygotes and compound heterozygotes for cytochrome b5 reductase deficiency are cyanotic but asymptomatic even with methemoglobin levels up to 40%, and have less risk of acute deterioration after exposure to exogenous methemoglobin inducing agents.[3] Symptoms of oxygen deprivation appear only as methemoglobin levels rise above 30%.[4] Intravenous methylene blue is indicated only for emergency treatment of "toxic" methemoglobinemia[3] and is known to cause serious adverse effects.

In our opinion, anesthetic management of congenital methemoglobinemia should target oxygenation rather than methemoglobin levels, and pharmacological intervention to decrease methemoglobin levels should be attempted only when increased methemoglobin leads to impaired oxygenation. We feel that the authors should have proceeded without prophylactic administration of methylene blue and should have administered the drug only if increased methemoglobin levels lead to desaturation. Also, the authors should have ruled out G6PD deficiency.

Recently, we managed a case of congenital methemoglobinemia with coexisting Osler-Weber-Rendu syndrome. Despite associated pulmonary arteriovenous malformations, anesthesia was successfully managed without using methylene blue.[5]

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Reply:

Thank you for referring the letter of Charma et al. concerning our report "Prophylactic methylene blue in a patient with congenital methemoglobinemia.[1]

Our patient had severe congenital methemoglobinemia as evidenced by a methemoglobin level of 15.9%. The case was scheduled on two previous occasions for turbinectomy, but was cancelled because of the development of severe hypoxemia during induction of anesthesia.[1,2]

On this occasion, the patient was preoxygenated prior to induction of anesthesia resulting in an increase of the PaO_2 from 81.3 to 543 mmHg, associated with an increase of the functional oxygen saturation (SaO_2) [O_2Hb / O_2HB + RHb × 100%] from 96.2% to 99.7%. However, as shown in the Table, the fractional oxygen saturation (SfO_2) [O_2Hb / O_2Hb + RHb + COHb + MetHb × 100%] which reflects the actual oxyhemoglobin saturation, only increased from 80.9% to 84.1%. Thus, preoxygenation alone did not provide an adequate margin of safety against hypoxemia. It was only after the administration of methylene blue that SfO_2 increased up to 94.7%, associated with a significant decrease of the methemoglobin level from 15.9% to 5%.

The increase in SfO_2 and the decrease in methemoglobin levels following prophylactic methylene blue were maintained postoperatively, which increased the safety margin against perioperative hypoxemia not only during induction of anesthesia, but also intraoperatively and during the postoperative period.

TABLE Values of oxygen partial presure (PaO_2), saturation (SaO_2) and fractional saturation (SfO_2) and methemoglobin concentrations on room air, after preoxygenation, and after methylene blue administration

		PaO_2 (mmHg)	*SaO_2 (%)*	*SfO_2 (%)*	*Methemoglobin (%)*
Room air	Room Air	81.3	96.2	80.9	15.9
After preoxygenation	100% O_2	543	99.7	84.1	15.8
Five minutes after methylene blue	100% O_2	519	100	94.7	5
Second day	Room air	86	96.9	93.4	2.6

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Optimizing insertion of the ProSeal laryngeal mask airway

To the Editor:

O'Connor *et al.* report an incidence of ProSeal laryngeal mask airway (PLMA) glottic insertion of 6%.[1]

We should not conclude the PLMA increases the risk of glottic insertion. In the first classic LMA (cLMA) fibreoptic study 4% of cLMA tips entered the glottis.[2] Unlike the cLMA, the PLMA drain tube enables rapid diagnosis of misplacement.

During 656 elective adult PLMA insertions (age 52 ± 17 yr, weight 76 kg, range 34–140 kg, > 90% unparalyzed) my first time success is 83.2%, overall success 99.8% and median seal pressure 33 cm H_2O.