

patients with beards may have been successful had they been tried. A LMA would have facilitated effective ventilation prior to intubation and there is a good case for stating that it should have been available.

My contention is that, in the context described, this is a potentially dangerous manoeuvre from which the patient and the author are fortunate to have emerged without an adverse outcome.

Kirk Lalwani, FRCA
Portland, Oregon

Reference

- 1 *Boyce JR*. Poor Man's LMA: achieving adequate ventilation with a poor mask seal. *Can J Anesth* 2001; 48: 483-5.

An unusual solution to unsuspected difficult airway: the esophageal dilator guide

To the Editor:

A 40-yr-old (153 cm, 50 kg, ASA-I) woman was scheduled for excision of a recurrent ameloblastic carcinoma involving the right upper alveolus and maxilla. Earlier, she had received uneventful general anesthesia twice and radiotherapy. Airway assessment revealed a mouth opening of 4 cm, loose incisors, an absent left alveolar ridge with collapsed overlying cheek secondary to the previous left maxillectomy, a Mallampati¹ class-I airway and a maxillary growth barely protruding over the right faucial pillars without obstructing the view of the oropharyngeal structures. Neck mobility was normal. An axial tomogram of the head showed the maxillary mass occupying both nares and a destroyed septum (Figure).

Following preoxygenation, anesthesia was induced with propofol 2.5 mg·kg⁻¹ and suxamethonium 1.5 mg·kg⁻¹ was administered intravenously after ensuring mask ventilation. Laryngoscopy with a No.2 Macintosh blade revealed a Cormack and Lehane² grade 1 view of the vocal cords. An intubation attempt using a 7.0 mm ID endotracheal tube (ETT) failed, as the maxillary growth had reduced the available oropharyngeal space. Any further displacement of the tongue to the left resulted in the laryngoscope blade giving way at the missing alveolar ridge. We overcame this difficulty in a novel manner; a straight blade (Harlake No.2) was introduced and the tongue shifted as much possible to the left. An esophageal dilator (No.18, Porges Neoplex, France 4001) was advanced



FIGURE Computed tomography (axial view) of the head showing a maxillary mass occupying both nasal cavities with destruction of the nasal septum.

gently into the tracheal inlet along the flange, the laryngoscope removed and a 6.5 mm ETT was railroaded over it into the trachea.

Our case represents an unsuspected difficult airway, where the view at laryngoscopy was adequate but the oropharyngeal space insufficient to intubate. The esophageal bougie (90 cm, flexible, atraumatic tip) may prove a useful alternative to conventional guides^{3,4} and/or fibroscope⁵ in situations where they are not readily available.

Amitabh Dutta MD
Y.K. Batra MD MNAMS
A. Ram Mohan MBBS
Pramila Chari MD MNAMS FAMS

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- 2 *Cormack RS, Lehane J*. Difficult tracheal intubation in obstetrics. *Anaesthesia* 1984; 39: 1105-11.

- 3 Dogra S, Falconer R, Latto IP. Successful difficult intubation. Tracheal tube placement over a gum-elastic bougie. *Anaesthesia* 1990; 45: 774–6.
- 4 Carr R, Reyford H, Belani K, Boufflers E, Krivosic-Horber R, Palahniuk R. Evaluation of the Augustine guide™ for difficult tracheal intubation. *Can J Anaesth* 1995; 42: 1171–5.
- 5 The difficult intubation. *In: Ovassapian A (Ed). Fiberoptic Airway Endoscopy in Anesthesia and Critical Care.* New York: Raven Press, 1990: 135–48.

Special challenges with new digital anesthesia machines

To the Editor:

Dr. Doyle is absolutely correct in observing the challenges of the new computerized anesthesia workstations,¹ which I am certain do not apply only to systems from Datex-Ohmeda. We have similar, though different, observations, complaints, and cautions in regards to our anesthesia delivery units (ADU).

I would offer an extension to his comments on software ‘upgrades’ and the recommendation to “ask for free software upgrades for the life of the product”, inasmuch as our medical supply companies have learned lessons from the major software companies and are trying to make a somewhat artificial distinction between ‘updates’ and ‘upgrades’. They claim that ‘updates’ fix ‘bugs’ and ‘upgrades’ extend functionality, and ‘upgrades’ are therefore worth the \$2000 they charge. I am personally unable to see the clinical importance of that distinction when software ‘changes’, even those changes which add new features, address issues which I have with the functioning of the machine.

I suggest that buyers ensure that the contract language specifies that the provision of software ‘developments’ are included in the purchase price for the life of such computer-based medical equipment.

Canadian anesthesiologists should be reminded of the CAS Equipment Information Exchange Database at www.anesthesia.org/cas where specific equipment problems of the nature discussed can be reported and shared.

Richard N. Merchant MD FRCPC
New Westminster, British Columbia

Reference

- 1 Doyle DJ. New Media. Special challenges with new digital anesthesia machines. *Can J Anesth* 2001; 48: 609–10.

REPLY:

Dr. Merchant makes some excellent points about the problems associated with software-based anesthesia machines. Although medical equipment manufacturers are slowly coping with the special challenges introduced when computers are embedded into medical products, it is apparent that not all manufacturers are committed to careful ergonomic evaluation of their products.

The ideal anesthesia machine design should be intuitive and error-tolerant^{1,2} and should also contribute to improved situational awareness.³ At the moment such systems are still largely lacking. However, this matter will almost certainly change now that organizations such as the Emergency Care Research Institute (ECRI)⁴ and individuals such as Dr. John Oyston⁵ are publicizing the problem of user hostile anesthesia machine designs.

D. John Doyle MD PhD FRCPC
Toronto, Ontario

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- 2 Gravenstein JS. How does human error affect safety in anesthesia? *Surg Oncol Clin N Am* 2000; 9: 81–95.
- 3 Gaba DM, Howard SK, Small SD. Situation awareness in anesthesiology. *Hum Factors* 1995; 37: 20–31.
- 4 ECRI. Anesthesia systems. *Health Devices* 1996; 25: 158–211.
- 5 John Oyston. A Critical Review of the Siemens KION Anesthesia Workstation. <http://www.oyston.com/kion/>