

Associated adverse outcomes and risk factors including intraoperative transesophageal echocardiography. *J Thorac Cardiovasc Surg* 1995; 110: 517–22.

Ventilation of a patient after esophageal intubation with a double-lumen tube

To the Editor:

Sometimes, intubation with a double-lumen tube (DLT) is difficult. We present a patient who was ventilated after esophageal intubation with a DLT used like an esophageal-endotracheal combitube (EEC). A 66-yr-old female patient (155 cm, 74 kg, body mass index = 31) was scheduled for thymectomy for grade-I myasthenia gravis. Her thyromental distance was less than 6 cm and difficult intubation was predicted. General anesthesia was induced with 70 mg propofol and 0.1 mg fentanyl, and maintained with 4% sevoflurane. She was intubated without using a muscle relaxant with a 35 Fr-Left-DLT (Sheridan, Tyco, Tokyo, Japan). Her Cormack's laryngoscopic view was grade 3. Although the DLT could not be advanced more

than 21 cm from the patient's incisors, endotracheal intubation was assumed when spontaneous breathing re-appeared rapidly and capnography detected a normal CO₂ waveform. However, the patient could not be ventilated mechanically. Subsequent fibroscopy via the bronchial lumen revealed esophageal intubation. The bronchial lumen compressed the posterior wall of the esophageal inlet, while the tracheal lumen opened just posterior to the arytenoid cartilages (Figure). In this case, the DLT performed as an EEC. Grmec reported that capnography was the most reliable method to confirm esophageal intubation,¹ since the CO₂ waveform generally decreases to zero, even if an initial pulse of swallowed CO₂ is sensed. However, repeated airway evaluations should be performed to prevent a misdiagnosis such as occurred in our case, rather than depending on capnography alone.

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Reference

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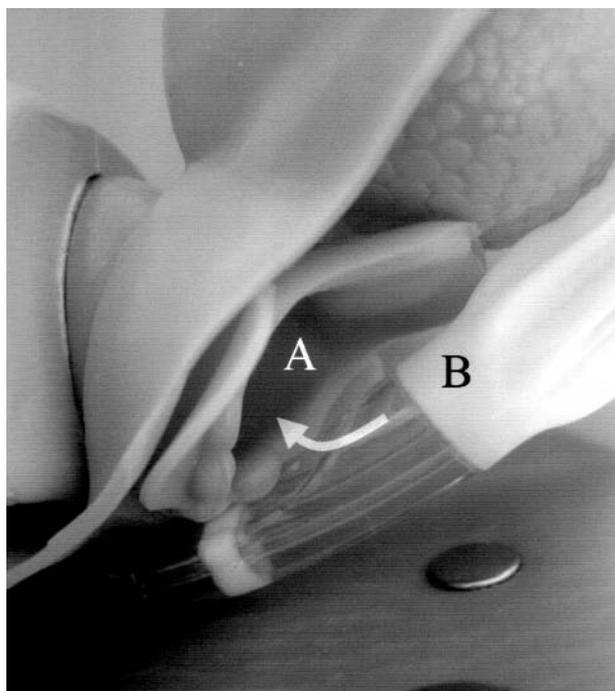


FIGURE Relationship between the vocal cords and the tracheal lumen of a double-lumen tube (DLT). The bronchial lumen is inserted in the esophagus. A, vocal cords; B, tracheal lumen of the DLT.

Management choices for the difficult airway

To the Editor:

We read with great concern the article by Jenkins *et al.* (October 2002).¹ Their survey showed that in "Clinical Scenario number 3 - Laryngeal tumour with stridor for laryngectomy," 90% of anesthesiologists would perform an awake intubation, 45% of which would use fiberoptic bronchoscope (FOB) and 38% a lighted stylet.

This is very dangerous practice and could result in death of the patient. Best anesthetic practice is either 1) gas induction of anesthesia, maintaining spontaneous respiration, and when deep enough using a rigid laryngoscope (our preference is the tubular Lindholm scope as it opens up the posterior pharyngeal space and pushes tumour or edema out of the way). 2) If the patient is deemed to have an extremely compromised airway then an awake surgical tracheostomy is indicated.²

Awake FOB intubation is totally contraindicated in this scenario for the following reasons:

1) lidocaine spray or FOB stimulation to the cords will result in irreversible laryngospasm in these patients; 2) a 4-mm FOB is inadequate in this situation due to a narrow field of view, distorted anatomy, potential bleeding from a friable tumour, and a narrow or closed posterior pharyngeal space; 3) if you were lucky enough 'God willing' to insert the FOB into the larynx of this airway compromised patient, the sheer terror of now completely occluding the airway would result in an acutely distressed uncooperative patient. An extremely ugly and potentially deadly situation.

We also consider the use of the lighted stylet to be totally inappropriate to this scenario.

Also of concern is that the appropriateness of this practice was not challenged in either the discussion section of the article or in the accompanying editorial.³

We refer you to an extremely useful editorial that we commend to your readers.²

We suspect that the results of your Canadian survey reflect similar opinions in Australia, our "Difficult Airway Societies" will have to work harder to inform and teach best practice airway skills.

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References

- 1 *Jenkins K, Wong DT, Correa R.* Management choices for the difficult airway by anesthesiologists in Canada. *Can J Anesth* 2002; 49: 850–6.
- 2 *Mason RA, Fielder CP.* The obstructed airway in head and neck surgery. *Anaesthesia* 1999; 54: 625–8.
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REPLY:

*A patient with laryngeal tumour presenting with stridor for laryngeal surgery is a daunting situation to deal with. The purpose of our survey was to obtain the anesthesiologist's first choice for airway management of the scenarios stated.*¹

*The three most commonly cited options are: awake tracheostomy, awake intubation and intubation following inhalational induction.*² *Patients who were found to have severe stridor or to have a large or vascular tumour endoscopically should have an awake tracheostomy performed under local anesthetic.*²

If the patient is considered possible to intubate, either awake intubation or inhalational induction are possibilities. Awake fiberoptic intubation is an excellent approach to securing a difficult airway. It has been used

*successfully to manage patients with a variety of obstructive lesions.*³ *We disagree with the statement that "awake fiberoptic bronchoscope intubation is totally contraindicated in this scenario". The key to successful awake intubation includes adequate topicalization, patient psychological preparation, experienced fiberoptic operator and full preparation to perform tracheostomy should intubation fail.*^{3,4} *Acute airway obstruction has been reported during awake intubation.*⁵

*Inhalational induction of general anesthesia using sevoflurane is another option.*² *Adequate anesthetic depth must be achieved before airway instrumentation. Complete airway obstruction and laryngospasm can occur during inhalational induction and one should be fully prepared for a tracheostomy.*

*I apologize for an error in Table II.*¹ *Thirty-eight percent of the respondents chose surgical airway, not lighted stylet (erratum published in this issue). It would be inappropriate to use a lighted stylet for an airway with known pathology.*

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- 4 *McGuire GP, Wong DT.* Airway management: contents of a difficult intubation cart. *Can J Anesth* 1999; 46: 190–1.
- 5 *McGuire G, el-Beheiry H.* Complete upper airway obstruction during awake fiberoptic intubation in patients with unstable cervical spine fractures. *Can J Anesth* 1999; 46: 176–8.