CORRESPONDENCE

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Tracheal Tube/Laryngeal Mask Exchange for Emergence

To the Editor:—Coughing and gagging on the tracheal tube at the end of the anesthetic may result in acute hemodynamic changes, increased intracranial and intraocular pressure, and hypoxia. To date, the only approaches to the avoidance of such coughing are the use of opioids and tracheal extubation, with the patient deeply anesthetised. There are problems with both, and we consider that exchanging the tracheal tube for the laryngeal mask airway (LMA) offers a possible solution. Accordingly, we report 10 patients undergoing major neurosurgery in whom such an exchange occurred.

The 10 patients comprised 7 undergoing elective clipping of intracranial aneurysms and 3 having intracranial tumors removed. Patients were ASA physical status 1–2, aged 40–74 yr, and weighed 55–98 kg. No patient was considered at risk of aspiration. Standard monitoring was applied, with arterial and central catheters and a peripheral nerve stimulator. Anesthesia was induced with 2 $mg \cdot kg^{-1}$ propofol and 5–10 $\mu g \cdot kg^{-1}$ fentanyl, and anesthesia was maintained with oxygen/air/isoflurane mixture (minimum alveolar concentration 0.2–0.5) and a fentanyl infusion of 3–10 $\mu g \cdot kg^{-1} \cdot hr^{-1}$. Patients were paralyzed, and their lungs were ventilated *via* a reinforced tracheal tube. Muscle relaxation was with vecuronium and maintained *via* an infusion. Labetalol was given by infusion, as required to maintain baseline blood pressures during the procedure. The fentanyl infusion was ceased approximately 1 h before the end of the procedure.

Before the exchange, the nasogastric tube was suctioned and removed, and 0.5 $mg \cdot kg^{-1}$ propofol was given. The oropharyngeal cavity was suctioned, the tracheal tube was removed, and an appropriate-sized LMA inserted by an experienced LMA user. Neuromuscular blockade was reversed with neostigmine and glycopyrolate. After the application of dressings, and when the train-of-four ratio had returned to normal, anesthesia was discontinued. The LMA was removed by the anesthesiologist in the operating room or postanesthesia care unit when the patient was breathing adequately and could respond to commands. All adverse events were noted by the anesthesiologist who conducted the case. The hemodynamic data were analyzed in 1-min epochs.

The neurosurgical procedures were uneventful and lasted 4–6 h. The LMA was inserted at the first attempt and functioned perfectly in all patients. The mean (range) time from the exchange to removal was 15 (5–32) min. No patient coughed during emergence or removal, and there were no adverse events. The rate pressure product varied by less than 15% of pre-exchange baseline values in all patients during the exchange, subsequent emergence, and LMA removal. Labetalol was not required in any patient during the last 45 min of surgery or during the airway exchange/emergence from anesthesia.

We conclude that the tracheal tube/LMA exchange provides suitable conditions for some neurosurgical patients. The technique also may have applications in other patients/situations,[1] including fiberoptic assessment of vocal cord function after thyroid surgery.* It is preferable that the airway exchange take place while the patient is paralyzed, to prevent coughing or laryngospasm. Also, should placement of the LMA fail, the trachea may be re-intubated easily. The technique is not recommended for the patient at risk of aspiration or in whom tracheal intubation was difficult. Finally, exchange of the tracheal tube for the LMA should be attempted only by those experienced in using the LMA.

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* Maroof M, Khan RM, Cooper T, Siddique MS, Saqib N: Post thyroidectomy vocal cord examination using LMA aided fiberoscopy (abstract). ANESTHESIOLOGY 1993; 79:A1083.

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