In Reply.—Nakamura et al. are correct in pointing out that the effect of volatile anesthetics on vascular smooth muscle tissue cyclic guanosine 3,5-monophosphate (cGMP) levels was reported in their work. Their findings, using the rat aorta, showed that cGMP levels were increased in the presence of halothane. Our findings, which complement their results, indicate that endothelium-intact canine cerebral arteries, halothane increases tissue cGMP levels, which may contribute to the cerebral vasodilatory effects of halothane. These results are different, however, from the recent report by Toda et al. They found that halothane lowered the blood flow as well as the acetylcholine-induced cGMP formation in the endothelium-intact rat aorta.

Because we have studied the effect of halothane on tissue cGMP levels in isolated cerebral arteries preconstricted with 5-hydroxytryptamine, it may not be possible to draw a comparison between these two different studies. Therefore, further studies using similar procedures are needed to resolve the observed discrepancies between our observations and their observations. In addition, there also might be a substantial regional and species-related heterogeneity in the role of endothelium on volatile anesthetics-induced cGMP formation.

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References

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A New Method of Endotracheal Tube Fixation for Pediatric Neurosurgical Patients

To the Editor.—Two recent letters describe the use of a transparent dressing (Tegaderm®, 3M, St. Paul, MN) to facilitate securing an endotracheal tube. We have combined Tegaderm® with silk suture to create an exceptionally secure method of endotracheal tube fixation in younger pediatric patients undergoing lengthy neurosurgical procedures performed in the prone position. This position, with the patient’s head supported on the pediatric horseshoe headrest, and with the head of the table turned away from the anesthesiologist, requires a securely placed endotracheal tube. Use of a nasal endotracheal tube decreases the likelihood of intratracheal tube kinking and decreases the problem of the tube abutting against the horseshoe headrest; however, nasal bleeding secondary to the intubation, secretions, or skin preparation solutions may moisten and loosen adhesive tape securing the tube, leaving the tube at risk for intraoperative dislodgement.

In view of these considerations, we have developed a technique for nasal endotracheal tube stabilization that appears to offer improved safety over other described methods. This technique combines the use of a reinforced nasal endotracheal tube (NCC Division, Mallinckrodt, Argyle, NY), silk sutures, foam tape (Microfoam®, 3M, St. Paul, MN), skin adhesive (Mastisol®, Ferndale Labs, Ferndale, MI), and Tegaderm®. Nasal endotracheal intubation is performed, using a

Fig. 1. Place silk sutures eccentrically through several rings of a reinforced nasal endotracheal tube.
reinforced endotracheal tube. Two 3-0 silk sutures are passed through several rings of the tube 180° apart; multiple knots are tied to secure these sutures (fig. 1). These sutures and knots are then wrapped in Microfoam® tape to prevent subsequent pressure necrosis. Mastisol® skin adhesive is applied to the cheeks; the wrapped sutures are then placed on the sticky skin. Finally, two small pieces of Tegaderm® are applied over the skin and foam-wrapped sutures (fig. 2).

The technique we describe avoids the need for adhesive tape around the endotracheal tube itself. This leaves the tube less susceptible to wetting by blood, secretions, or skin preparation solutions. We have used this technique successfully for many procedures over the last 5 years without complications.

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References

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Use of a Dental Mirror as an Aid to Tracheal Intubation in an Infant

To the Editor—A 2½-month-old full-term infant was scheduled for elective bilateral hernia repair under general anesthesia. Physical examination revealed a vigorous 3.9-kg child with a complete cleft palate and slightly receding chin.

Anesthesia was induced using nitrous oxide, oxygen, and halothane via mask. An intravenous catheter was inserted and 0.1 mg atropine followed by 10 mg succinylcholine was administered intravenously. Intubation was attempted using a #1 Miller laryngoscope blade multiple times without success. Only the tip of the epiglottis was visualized during laryngoscopy. Spontaneous ventilation with the patient breathing halothane and oxygen was reestablished. Hemoglobin oxygen saturation of 100% and end tidal carbon dioxide around 38 mmHg were maintained during the procedure. With the head in full extension, a #1 Macintosh laryngoscope blade was used to retract the tongue. A #3 short handle dental mirror (Sonnar Instrument Company, Manchester, MT) was defogged and placed with the right hand in the oropharynx to visualize the larynx. The handle of the mirror was moved to the left side and held along with the laryngoscope by the left hand, keeping the image of the larynx in the mirror. The left thumb was used to hold the handle of the mirror, pressing against the oropharynx to keep it steady (fig. 1A). A 3-mm endotracheal tube with stylet appropriately curved, coinciding with the curve of the Macintosh laryngoscope blade, was positioned in front of the mirror.

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