Effectiveness of transnasal jet ventilation – a teaching aid

To the Editor:

We have developed a technique of transnasal jet ventilation to facilitate resident education in the area of fiberoptic intubation.

The patients selected are scheduled for oromaxillo-facial surgical procedures with a nasal endotracheal tube. This technique is used only in patients in whom the airway evaluation (oropharyngeal classification, head extension, and hyomental distance) predicts easy intubation, and are free of pathology that is obstructive or potentially obstructive to the airway.

After preoxygenation and application of appropriate monitors, selected patients undergo induction of general anesthesia with sodium thiopental, 3–5 mg·kg⁻¹, fentanyl 3–4 µg·kg⁻¹ and rocuronium 0.6 mg·kg⁻¹. Lidocaine 1.5 mg·kg⁻¹ and glycopyrrolate 0.4 mg·kg⁻¹ are also administered. Phenylephrine nose drops, 0.25% are applied to each nasal cavity. A #7 silastic nasopharyngeal airway, well lubricated with 2% lidocaine jelly is introduced into the nasopharynx through one nostril (Figure). Mask ventilation is resumed and a propofol infusion is started at a rate appropriate for the vital signs.

FIGURE

Using a #16 gauge plastic *iv* cannula connected by the luer-lock to the distal end of the Sanders “jetting device,” oxygen at 40 psi is jetted into the nasopharyngeal airway for a duration of one or two seconds at a rate of 20 times per minute. Chest excursions and pulse oximetry are used to monitor adequacy of ventilation, while the resident performs nasal fiberoptic endotracheal intubation through the other nostril.

This technique of jet ventilation through a nasopharyngeal airway provides optimal conditions for anesthesiology trainees to gain experience in fiberoptic assisted endotracheal intubation. To date we have experienced no complications.

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A new setup for emergency transtracheal jet ventilation

To the Editor:

Numerous methods of providing emergency transtracheal jet ventilation (TTJV) via a percutaneously placed catheter have been described.^{1–5} A pre-assembled TTJV system is likely the gold standard for instituting this potentially life saving measure. However, there may be places where a pre-assembled system is unavailable. Recently, we assembled several previously described emergency TTJV systems, and in the process, created a new system using readily available materials which may confer certain advantages (Figure).

This new system can be connected to the anesthesia machine's common gas outlet (CGO) using a 4.0 mm endotracheal tube connector. As with other TTJV systems, ventilation can be accomplished by intermittently depressing the oxygen flush button (OFB) with the monitoring port of the elbow capped. A second unique strategy would involve an assistant continuously depressing the OFB while the anesthesiologist intermittently occludes the monitoring port with a finger, thus controlling ventilation near the catheter.

Alternatively, and most importantly with this system, the oxygen tubing (minus the endotracheal tube connector) can be connected directly to any wall oxygen outlet (maximum 50 psi). Using this configuration, the monitoring port can be intermittently occluded, again acting as a “flow-by valve”. The anesthesiologist is in total control of ventilation with both hands stabilizing the system, minimizing the need for assistance. This configuration may increase the inherent safety of emergency TTJV as catheter migration

FIGURE Trans-tracheal jet ventilation setup including: 14 gauge *in* catheter, 3 cc Becton-Dickinson syringe with plunger removed, 15 mm endotracheal tube connector from 7.5 endotracheal tube, 90 elbow with gas monitoring port, oxygen tubing, and 15 mm endotracheal tube connector from 4.0 endotracheal tube (if using common gas outlet).

and subsequent subcutaneous emphysema is the most commonly reported complication of this procedure.⁵

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Central venous catheters for craniotomies

To the Editor:

Although their case report discusses inotropic therapy for venous air embolism (VAE), Archer *et al.* do not explain why they did not place a central venous catheter (CVC).¹ Meningiomas are vascular tumours, and the parasagittal location suggests that the sinus might be involved. Also, the patient's head was elevated 15°. Given the circumstances, the likelihood of VAE seems high enough to warrant a multi-orifice CVC,² although both the indications for and efficacy of CVCs remain controversial. As the authors cited, Maurice Albin believes that anesthesiologists underestimate the frequency and significance of VAE (? as evidenced by this case).³ If the authors could explain their rationale, it might help others in deciding when to place CVCs for craniotomies.

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REPLY:

We thank Dr. Allen for his helpful and well-founded comments. It is certainly true that some of the features of the case that we presented favour insertion of a central venous catheter (CVC). However, the decision to do so is a clinical one based upon the information available at the time. In the present case, the insertion of a CVC was not considered to be indicated. By presenting this case, we in no way wish to question the insertion of CVC's for aspiration of air, but simply to draw attention to another possible treatment strategy that may be helpful.

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