

## Scavenging Waste Gases in Pediatric Patients

*To the Editor:*—Proper use of uncuffed endotracheal tubes in pediatric anesthesia allows for an audible gas leak around the tube at less than 20–30 cmH<sub>2</sub>O inflating pressure.<sup>1</sup> This practice usually allows adequate ventilation of the patient but can result in pollution of the operating suite with anesthetic gases. Those persons working around the head and mouth (*e.g.*, anesthesiologists, ophthalmologists, otolaryngologists) are exposed to the highest concentrations of waste gases. A simple and effective technique was developed recently for scavenging these leaked gases. Following endotracheal tube placement, a 14 Fr. multiorificed oxygen catheter (Pharmaseal, Inc., Toa Alta, Puerto Rico 00758) attached to 100 mmHg suction, is placed in the oropharynx. The depth of catheter placement is determined by externally measuring the distance from incisors to tragus. The catheter position is fixed by taping it to the endotracheal tube at the level of the lips.

Three patients undergoing strabismus surgery had endotracheal tubes and oxygen catheters placed in the fashion described above, except that no suction was applied to the oxygen catheters. All had audible gas leaks around their tubes at less than 20 cmH<sub>2</sub>O inflating pressures. After 30 min of 1% halothane–oxygen anesthesia with mechanical ventilation (adjusted to peak inflating pressure of 25 cmH<sub>2</sub>O), halothane concentration at the level of the incisors was determined for 20 s using a Perkin-Elmer Model 1100 mass spectrometer. Peak halothane concentrations are shown in table 1 (“Before Suction”). Halothane concentrations were determined again in the same way following application of suction to the oxygen catheter for 10 min (table 1, “After Suction”). Inspired and expired concentrations of oxygen, determined at the endotracheal tube connection of the Mapleson D system, remained unchanged during application of suction.

Potential drawbacks of this technique include 1) ad-

TABLE 1. Peak Halothane Concentration at Level Of Central Incisors (%)

Patient No.	Before Suction	After Suction
1	0.49	0.06
2	0.55	0.04
3	0.65	0.01

ditional suction apparatus with proper venting is necessary; 2) extremely high suction or placement of the oxygen catheter near or below the glottis could cause negative pressure to develop in the trachea; and 3) restriction of the field for surgery in or about the mouth (however, both endotracheal tube and oxygen catheter have been incorporated into commonly used mouth gags for pharyngeal and palatal surgery without impairing function of either). The reductions in halothane concentration seen here are neither predictable nor proportional, but they are large. This technique greatly may reduce the alleged risks of operating room personnel exposed to anesthetic gases.<sup>2</sup>

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## REFERENCES

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